

REPORT

ON THE

HEALTH OF THE CITY

OF

BIRMINGHAM,

FOR THE YEAR 1888,

ALSO,

ON THE PROCEEDINGS TAKEN UNDER THE ACT FOR THE

PREVENTION OF ADULTERATION

OF ARTICLES OF FOOD AND DRINK,

BY

ALFRED HILL, M.D., F.I.C.,

Ex-President of the Society of Medical Officers of Health;

Ex-President of the Society of Public Analysts;

Medical Officer of Health and Analyst to the City.

PRINTED BY ORDER OF THE HEALTH COMMITTEE.

BIRMINGHAM:

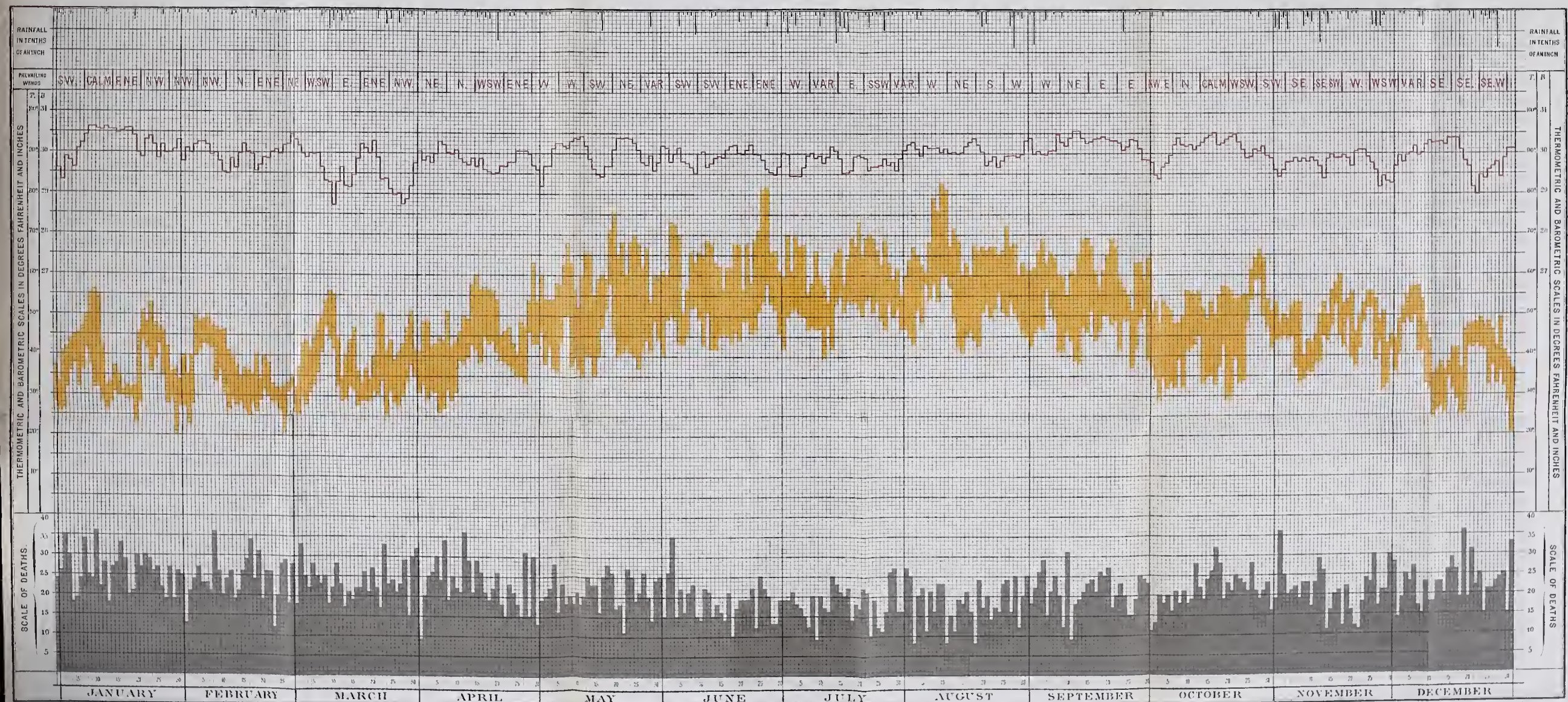
GEO. JONES & SON TOWN HALL PRINTING OFFICES, 87-89 EDMUND STREET.





City of Birmingham.

Chart illustrating the relations of the number of deaths to the principal meteorological conditions on each day of the year 1888.



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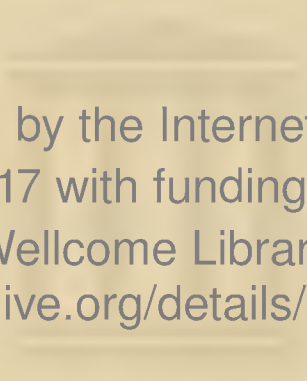
Lith. de l'Académie Royale de Médecine de Belgique.

MORTALITY: — Deaths — METEOROLOGY: — Temperature (maximum and minimum) — BAROMETRIC PRESSURE — RAINFALL.
(corrected and reduced to 32° Fahrenheit and sea level)

Note. The various readings for the 29th February will be found occupying the first column of the Chart.

With the
Medical Officer of Health's Compliments.

Recd. July '89.



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HEALTH DEPARTMENT,

THE COUNCIL HOUSE,

Birmingham, April 30th, 1889.

TO THE HEALTH COMMITTEE.

MR. CHAIRMAN AND GENTLEMEN,

I have the honour to submit to you my Report—the sixteenth—for the year 1888 on the health of the City, and in doing so to indicate at the outset the highly satisfactory condition of the town as compared with any previous year of its written sanitary history.

Introductory
Remarks.

The great improvement exhibited is most broadly seen in the marked decline of the total Death-rate from 26·8 per thousand of the population in 1874 to 17·5 in 1888, a fall of 9·3 per thousand, or 34·7 per cent. The lowest Death-rate ever attained previously is 19·1 per thousand. This was in 1885. In 1886 and 1887 there was a fractional increase only, so that an unusually low rate prevailed during the three years immediately preceding the year 1888, the Death-rate of which, however, is 1·6 below that ever before recorded.

Not only in the total Death-rate is the improvement seen, but also to a decided extent in those essentially preventable diseases Fever and Diphtheria, and some other Zymotics.

Scarlet Fever has shown itself remarkably less fatal during the last four years, while the regularity with which its periodical wave has formerly advanced and culminated has been interfered with, and its progress retarded. This question will be found more fully treated of under its special heading.

While then there is much cause for satisfaction with the results obtained, results due doubtless, in a large degree, to the sanitary work done under the authority of your Committee, it is necessary not to lose sight of the fact that a great part of the improvement during the past year is due to the prevalence of favourable climatic conditions. In the first or winter quarter of the year the temperature, it is true, was low, but it was not variable, which in itself is an advantage; the second or spring

Introductory
Remarks
(continued).

quarter was, on the whole, of a favourable character, while the summer was cool and the autumn was mild. Such a meteorological history of the year could not fail to exert a beneficial influence on general health, and indeed such an influence has been exerted not only in this town but all over the country; it is hardly to be expected, however, that these conditions will continue uninterruptedly for a long period, and that a continuous improvement of the public health at the present rate will be realised. Such steady progress as this must be the result of unremitting perseverance in the removal of those many defective sanitary conditions which still exist in great numbers, the abolition of which offers a most promising field of sanitary effort which for some years to come will yield abundant fruit to reward the labours of sanitary authorities.

I. VITAL STATISTICS.

Population.

The Population of the City, in the middle of the year 1888, based by the Registrar-General on the number of persons enumerated in the census of 1881, and on the supposition that the same rate of increase has continued since that date as prevailed during the ten years between 1871 and 1881, was 447,912.

Natural
increase.

The excess of Births over Deaths in the City, or the natural increase of population, disregarding the number of persons leaving or coming to reside in the City, is 5,838, equal to a rate of 1·30 per cent., against one of 1·21 in the previous year; this larger number of lives naturally added to our population is the result of a remarkably low death-rate, and would have been even more considerable if it had not been for a continuous fall in the birth-rate. The natural increase of the population remains, however, below the estimated increase of the Registrar-General, and confirms the opinion I have expressed in previous Reports that our population will be found, at the next census, to be over-estimated.

Area.

The City contains 8,400 acres, and as its area has undergone no alteration for many years, the mean density of the population continues to steadily increase, being now 53·3 per acre, against 45·6 ten years ago.

Density.

The population is, however, very unequally distributed, as some of the outlying districts are very sparsely populated—considerable areas, in fact, being devoted to agricultural purposes—so that the mean density of the entire city does not nearly express the actual proximity of person to person in some of its more thickly-peopled localities.

The statement below contains an estimate of the population, the density, and the recorded death-rate and corrected death-rate from all causes in some of the British towns during the year :—

Population, Density, and Death-rate of certain Towns.	Estimated Population, 1888.	No. of Persons per Acre.	Death-rate.	Corrected Death-rate.
London	4,282,921	57·3	18·5	19·6
Liverpool	599,738	115·1	20·3	22·3
Birmingham ...	447,912	53·3	17·5	19·0
Manchester	378,164	63·8	26·1	29·1
Sheffield	321,711	16·4	20·5	22·1
Leeds	351,210	16·3	20·6	22·0
Salford	226,336	43·8	21·1	23·0
Newcastle-on-Tyne	159,003	29·6	20·6	21·8
Norwich	93,675	12·5	20·2	19·3
Bristol	226,510	48·9	16·9	17·5
Glasgow	526,088	86·1	22·1	—
Dublin	353,082	14·3	25·3	—

Comparative
statement of
Death-rate, &c.,
in certain large
towns.

The maximum elevation of the City is 616 feet, and the minimum 291 feet, the highest portion being situated at the top of the Hagley Road, and the lowest at the far end of Nechells.

Elevation.

Birmingham is situated on the Upper New Red Sandstone, and the generally porous character of its soil favours the rapid passage of surface-water, and this conduces to that important hygienic factor, dryness of soil, and indirectly (to a considerable extent also) of air. Thus Birmingham enjoys not only a decided elevation—a condition opposed to stagnation of atmosphere—but also, owing to its undulating surfaces and porosity of soil, greater dryness of the surface than is possible in less-favoured localities.

Geological
position.

MARRIAGES.

Returns kindly supplied me by Messrs. Cooper, Hastings and Docker (Superintendent Registrars for the Parishes of Birmingham, Aston and King's Norton respectively) show that more persons have been married in the City during the past year than in any year since 1883, when the number was exactly identical with that for the period under notice. The marriage-rate is a higher one than any recorded since 1884. The improvement of trade observed of late has been, as is always the case, attended with a higher marriage-rate; there can be no doubt, in fact, that the marriage-rate reflects with much accuracy the degree of commercial activity and the consequent conditions of public prosperity.

Marriages.

Marriage-rate.

The number of Marriages and the Marriage-rate of the City in each of the last ten years have been as follows :—

	Year 1879	1880	1881	1882	1883	1884	1885	1886	1887	1888
No. of Marriages	3,046	3,215	3,261	3,581	3,634	3,435	3,276	3,462	3,452	3,634
Rate per 1,000 of the Population	15·7	16·3	16·2	17·5	17·5	16·3	15·3	15·9	15·7	16·2

BIRTHS.

The diminution in the Birth-rate noticed in each of the last ten years is still in progress. The Birth-rate has fallen from 42·5 per 1,000 persons, in 1876 and 1877, to only 30·5 in the past year, a reduction of no less than 28 per cent. This continuous fall in the Birth-rate is largely due to the lower rate of marriage.

Births in each quarter since 1873.

The numbers of Births registered in each quarter of every year since 1873, inclusive, and the Birth-rates for each year in that period, are as follows :—

		1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.	Birth-rate.
1873.							
Total	...	3,741	3,564	3,378	3,814	14,497	40·78
Males	...	1,892	1,783	1,715	1,950	7,340	
Females	...	1,849	1,781	1,663	1,864	7,157	
1874.							
Total	...	3,814	3,871	3,493	3,710	14,888	41·25
Males	...	1,953	1,961	1,753	1,853	7,520	
Females	...	1,861	1,910	1,740	1,857	7,368	
1875.							
Total	...	3,787	3,737	3,581	3,757	14,862	40·57
Males	...	1,929	1,884	1,815	1,904	7,532	
Females	...	1,857	1,853	1,766	1,853	7,329	
Sexless	...	1	—	—	—	1	
1876.							
Total	...	4,140	3,924	3,803	3,949	15,816	42·53
Males	...	2,045	1,996	1,959	2,028	8,028	
Females	...	2,095	1,928	1,844	1,921	7,788	
1877.							
Total	...	4,296	4,009	3,769	3,927	16,001	42·39
Males	...	2,139	2,015	1,878	2,037	8,069	
Females	...	2,157	1,994	1,891	1,890	7,932	
1878.							
Total	...	4,139	4,096	3,849	3,880	15,964	41·67
Males	...	2,160	2,051	1,962	1,982	8,155	
Females	...	1,979	2,045	1,887	1,898	7,809	
1879.							
Total	...	4,124	3,912	3,723	4,087	15,846	39·98
Males	...	2,086	1,992	1,878	2,096	8,052	
Females	...	2,038	1,920	1,845	1,991	7,794	
1880.							
Total	...	3,964	4,104	3,572	3,471	15,111	38·28
Males	...	2,023	2,100	1,762	1,802	7,687	
Females	...	1,941	2,004	1,810	1,669	7,424	

1881.		1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.	Birth-rate.
Total	...	3,965	3,754	3,550	3,590	14,869	36·96
Males	...	1,991	1,893	1,804	1,822	7,510	
Females	...	1,974	1,861	1,756	1,768	7,359	
1882.							
Total	...	3,968	3,760	3,478	3,660	14,866	36·39
Males	...	2,010	1,922	1,784	1,903	7,619	
Females	...	1,958	1,838	1,694	1,757	7,247	
1883.							
Total	...	3,975	3,814	3,460	3,452	14,701	35·44
Males	...	1,969	1,934	1,708	1,740	7,351	
Females	...	2,006	1,880	1,752	1,712	7,350	
1884.							
Total	...	3,765	3,817	3,557	3,852	14,991	34·91
Males	...	1,910	1,928	1,889	1,962	7,689	
Females	...	1,855	1,889	1,668	1,890	7,302	
1885.							
Total	...	3,776	3,528	3,550	3,529	14,383	33·62
Males	...	1,928	1,768	1,775	1,828	7,299	
Females	...	1,848	1,760	1,775	1,701	7,084	
1886.							
Total	...	3,697	3,623	3,524	3,438	14,282	32·88
Males	...	1,868	1,842	1,794	1,767	7,271	
Females	...	1,829	1,781	1,730	1,671	7,011	
1887.							
Total	...	3,509	3,594	3,372	3,418	13,893	31·50
Males	...	1,802	1,879	1,700	1,784	7,165	
Females	...	1,707	1,715	1,672	1,634	6,728	
1888.							
Total	...	3,522	3,436	3,470	3,245	13,673	30·53
Males	...	1,747	1,716	1,724	1,634	6,821	
Females	...	1,775	1,720	1,746	1,611	6,852	

The Births registered during the year consisted of 6,821 males and 6,852 females ; this is the first year in my records in which the births of more girls than boys have been registered.

The Birth-rates of the principal large towns, during the past year, have been as follows :—

Birth rate of
large towns
compared.

28 large Towns.	London	L'pool	Birm.	Manch.	Leeds	Sheff'd	Salf'd	N'castle	N'wich	Bristol
31·2	30·7	29·7	30·5	35·3	32·6	30·8	31·6	37·9	34·6	29·3

Birmingham occupies, relatively to the other towns, exactly the same position as in the previous year, having in both years a birth-rate 0·7 below the average of the twenty-eight largest English towns, and one also below that of all the other towns in the list, again excepting Liverpool and Bristol. The decrease in the birth-rate of the large towns is common to the whole country ; that of England and Wales was only 30·6, or 0·8 per 1,000 lower than that of the previous year, and 2·9 below the mean annual rate in the ten years 1878–87.

VACCINATION.

Vaccination.

I have been supplied with copies of the returns made to the Local Government Board for the year which terminated in June last, for which I am indebted to Messrs. Rust, Blanche, and Knight, Vaccination Officers for the Parish of Birmingham; to Mr. Stephens, Vaccination Officer of the Aston Parish; and to Mr. T. Johnson, Vaccination Officer for the Parish of Edgbaston. The full figures will be found in Table X.

In Birmingham Parish.

The returns for the Parish of Birmingham indicate that of 8,176 births returned on the sheets supplied by the Registrars of Births and Deaths, 6,791, or 83·0 per cent., were successfully vaccinated; 831, or 10·2 per cent., died before vaccination was effected; and 341, or 4·2 per cent., had been taken to places unknown to the Vaccination Officers of this Parish. The other children not thus accounted for, 2·6 per cent. of the whole, had either been removed to other districts, the Vaccination Officers of which had been acquainted with the fact, or their Vaccination had been deferred on medical grounds, or they proved insusceptible to the vaccine virus.

In Aston Parish.

Out of 5,273 births recorded in Aston Parish, 4,208, or only 79·8 per cent., were vaccinated with success, so that more than one out of every five remained unprotected at the end of the period embraced by the return, a greater proportion, either for this or any other portion of the City, than in any previous year embraced by these returns, which go back to the year 1880. This unsatisfactory record is due to the circumstance that a larger proportion than usual, viz., 4·0 per cent., has to be classed under that unsatisfactory heading, "unfit, insusceptible, or otherwise," the main reason for which may readily be seen when I state that, whilst the number of births "neither duly entered in the Vaccination Register, nor temporarily accounted for in the Report Book," at the end of June, 1887, was 76, it had risen, in the following June, to no fewer than 124.

In Edgbaston

The records of the births of 383 children were sent to the Vaccination Officer of the Parish of Edgbaston during the period embraced by this return, on 340 of whom, or 88·8 per cent., Vaccination was successfully performed; this proportion is higher than that of either of the two previous years. The only other feature of note revealed by the returns for this portion of the City is a larger proportion than usual of children whose Vaccination had been postponed on account of ill-health.

Viewed as a whole, the returns for that portion of the City within the Parish of Edgbaston are more satisfactory than those of other portions of it, because they show an improvement in the percentage of successful Vaccinations, while in both Birmingham and Aston Parishes the tendency is for the proportion to decrease; in the Parish of Birmingham, indeed, a continuous decline has been in progress ever since the year 1884.

The facts just dwelt upon, and others of generally less importance, will be more readily seen and compared with those for each of the eight previous years, by a glance at the subjoined statement of percentages.

Table of
comparison of
vaccination.

PARISH.	Year.	Vaccinated.	Died before Vaccination.	Removed to places unknown.	Unfit, insusceptible, or otherwise.
Birmingham	1880	86.2	9.7	3.0	1.1
	1881	87.3	9.6	1.7	1.4
	1882	88.9	9.2	1.0	0.9
	1883	87.1	10.2	1.3	1.4
	1884	87.2	9.7	1.4	1.7
	1885	84.1	11.2	2.1	2.6
	1886	83.7	10.6	2.6	3.1
	1887	83.9	11.0	2.7	2.4
Aston (Borough portion)	1888	83.0	10.2	4.2	2.6
	1880	81.3	9.3	6.4	3.0
	1881	83.2	10.3	5.5	1.0
	1882	81.8	9.3	6.4	2.5
	1883	82.4	9.5	5.2	2.9
	1884	82.4	11.4	3.7	2.5
	1885	82.5	11.1	3.3	3.1
	1886	82.1	10.8	3.7	3.4
Edgbaston	1887	81.4	11.2	4.1	3.3
	1888	79.8	11.7	4.5	4.0
	1880	82.6	8.2	1.8	7.4
	1881	81.3	8.2	3.2	7.3
	1882	86.1	7.3	3.6	3.0
	1883	91.1	6.7	0.9	1.3
	1884	89.2	7.5	1.1	2.2
	1885	89.0	8.4	0.7	1.9
	1886	87.1	7.9	0.9	4.1
	1887	85.8	9.5	2.0	2.7
	1888	88.8	5.0	1.0	5.2

As it is impossible to account for the Vaccination of children till they are three months old, the limit of age to which Vaccination can be legally deferred, the returns do not terminate at the same time as the Registration year, but are made up to the end of June.

DEATHS.

It is most pleasing to be able to record that the comparatively low Death-rate of recent years has this year undergone a further reduction, as the records of Deaths furnished me weekly by the local Registrars give a total for the year of only 7,835, a number lower than that of any year since 1869, when the population of the City was more than 100,000 less than it is now. In the year 1887 the occurrence of 8,536 Deaths was notified to this department. This year's Deaths, which embrace those of 4,105 males and 3,730 females,

Death-rate.

are also much fewer in number than the average for the previous ten years, which is 8,571. The Death-rate has fallen from an average of 22.1 during the previous fifteen years to only 17.49 in the period under notice. This remarkable fall in the Death-rate and consequent saving of life has not taken place suddenly but has been, generally speaking, continuous since 1875; this may be illustrated by the circumstance that in no year before 1881 did the Death-rate fall below 20 per 1,000, while in no year since 1884 has it exceeded that rate, and again by the fact that while the mean Death-rate of the six years 1876-81, both inclusive, was 22.2, that of the six following years, viz., 1882-7, was 20.1, so that previously to the unprecedentedly low rate now recorded a reduction of mortality had long been in progress.

Saving of life.

Comparing the Death-rate of the first five years during which I held my present appointment with that of the last five years, which give rates respectively of 24.8 and 19.3, I find that if the former rate had been continued during the last five years no fewer than 11,806 persons now living would have died during this period, so that as many as 2,360 additional Deaths would have been recorded per annum on an average of the last five years. If we take individual years and suppose that instead of a Death-rate of 17.49, that of the year under review had equalled that of 1874, which was 26.8, then the Deaths during the past year would have been 12,004 instead of 7,835 as they actually were; this supposition gives a saving of no fewer than 4,169 lives in the one year.

That a considerable amount of this enormous saving of life may be credited to the improved sanitary state of the City may be unhesitatingly asserted, but a reminder of the primitive character of the sanitary arrangements of the town fifteen years ago may not be out of place.

Sanitary conditions in 1873

When I entered upon my present office in 1873 the staff of Assistant Inspectors was numerically so small as to be totally unable to cope with the many serious nuisances which presented themselves at every turn. Very few streets were paved and many were unsewered, the courts and yards were generally dirty and unpaved, the system of privy accommodation almost universal in the town was the abominable midden, often of immense size, yard drains were commonly untrapped, or supplied with an imperfect kind of trap, and worse still the soil-pipes of closets and sink drains were almost without exception in simple and direct communication with the sewer, so that sewer gas was laid on to the houses in the town with almost as much certainty as coal gas; the domestic water

supply was in the majority of instances obtained from shallow wells, and generally of the most unsafe character, while animals of all kinds, frequently pigs, abounded in unsuitable positions, such as in close proximity to, or actually in, dwellings.

Sanitary conditions, 1873
(continued).

In addition to these grave sanitary defects there were comparatively few public parks, no provision existed for the isolation of cases of infectious disease, or for the disinfection of articles of clothing, voluntary notification of disease by the medical profession was rarely ever practised, the vaccination of infants was not energetically proceeded with, and the re-vaccination of adults was practically unknown, while the returns of mortality were not obtained, so that independently of their value from a statistical point of view for present and future purposes, even the deaths of persons who had suffered from infectious disease never came to the knowledge of the health authorities.

Last year's mortality was at such a rate that of 57·2 persons living one died during this period; this proportion is smaller than that of recent years. In the previous year one person in 51·7 died.

The Death-rate of the several medical and charitable Institutions in the City, exclusive of the Workhouse, is 1·3; inclusive of that Institution it is 2·6. I have obtained returns from these Institutions giving the locality in which the deceased persons last resided; these returns show that of the 1,175 deaths in the City Institutions 113 were in persons whose residence was beyond the City boundaries. Similar returns from the Erdington Workhouse and the Rubery Hill Asylum indicate that 155 Birmingham people died during the year in these Institutions, but their deaths were not debited to the City because not registered within it. I am unfortunately unable to obtain any particulars relating to the deaths of Edgbaston paupers in the King's Norton Workhouse, but there is every reason to believe they are very few in number, so that the difference between the number of persons non-resident in the City who die in our Institutions and of citizens who succumb in Institutions beyond our boundaries is so small as to affect the Death-rate to only a fractional extent.

Death-rate in
Institutions.

The annexed statement contains an estimate of the total population and of its density per acre, the numbers of Births

and Deaths, and the Birth and Death-rates for each year since 1865, inclusive :—

Year.	Population Estimated in the middle of each year.	Density. Persons per acre.	Births.	Deaths.	Annual Rate per 1,000 living.	
					Births.	Deaths.
1865	The Estimate of Population in these years is not to be relied on.	—	12,699	8,014	38·9	24·5
1866		—	12,877	8,042	38·5	24·0
1867		—	13,029	8,318	38·0	25·6
1868		—	12,992	8,548	36·3	25·9
1869		—	12,779	7,737	35·5	23·1
1870		—	12,922	7,805	35·0	23·0
1871	344,980	41·1	13,443	8,594	39·0	24·9
1872	350,164	41·7	14,123	8,048	40·5	23·1
1873	355,540	42·4	14,497	8,990	40·8	24·8
1874	360,892	43·0	14,888	9,665	41·2	26·8
1875	366,325	43·6	14,862	9,668	40·6	26·3
1876	371,839	44·3	15,816	8,330	42·5	22·4
1877	377,436	44·9	16,001	9,038	42·4	23·9
1878	383,117	45·6	15,964	9,662	41·7	25·2
1879	388,884	46·3	15,846	8,650	40·0	21·8
1880	394,738	47·0	15,111	8,088	38·3	20·5
1881	402,296	47·9	14,869	7,938	37·0	19·7
1882	408,532	48·6	14,866	8,425	36·4	20·6
1883	414,846	49·4	14,701	8,714	35·4	21·0
1884	421,258	50·1	14,991	9,043	34·9	21·1
1885	427,769	50·9	14,383	8,156	33·6	19·1
1886	434,381	51·7	14,282	8,499	32·9	19·6
1887	441,095	52·5	13,893	8,536	31·5	19·4
1888	447,912	53·3	13,673	7,835	30·5	17·5

It is a striking fact that the actual number of Births is smaller than it was at the highest point, which was attained in 1877, by no less a figure than 2,328, and of Deaths by 1,833 than in 1875, when the number of Deaths was at its maximum.

Comparative
Death-rate
of Birmingham
and large
towns.

A comparison of our Death-rates with those of other large towns with which it is most fairly comparable for each of the last sixteen years is afforded by the following table :—

Twenty large English Towns.		London	Lpool	BIEM.	Manch.	Leeds	Sheffld	Salford	N'castle	Norw'h	Bristol
1888...	19·0...	18·5	20·3	17·5	26·1	20·6	20·5	21·1	20·6	20·2	16·9
1887...	20·6...	19·6	23·7	19·4	28·7	21·1	21·6	22·2	25·3	20·4	20·4
1886...	20·7...	19·9	23·8	19·6	26·3	21·9	19·8	22·1	22·2	23·3	19·3
1885...	20·4...	19·6	23·7	19·1	26·4	19·9	20·6	21·0	26·0	20·2	19·6
1884...	21·4...	20·3	25·1	21·1	26·3	24·1	22·3	22·2	23·0	21·1	18·3
1883...	21·7...	20·4	26·6	21·0	27·6	23·2	22·9	22·3	25·4	19·6	17·8
1882...	22·6...	21·4	26·5	20·6	26·8	23·2	21·7	23·2	23·1	20·6	19·2
1881...	21·7...	21·2	26·7	19·7	25·5	21·6	21·1	22·6	21·8	19·5	19·6
1880...	22·6...	22·2	27·3	20·5	25·4	21·0	21·1	25·9	22·0	24·7	20·1
1879...	23·2...	23·3	27·1	21·8	26·9	22·6	21·3	24·9	23·6	22·0	21·1
1878...	24·4...	23·5	29·4	25·2	27·9	23·8	25·0	25·6	23·8	24·6	21·4
1877...	22·8...	21·9	26·5	23·9	27·4	22·3	21·9	25·1	22·4	21·0	21·8
1876...	23·6...	22·3	27·6	22·4	29·2	25·1	24·3	31·9	22·8	21·9	22·6
1875...	25·4...	23·7	27·5	26·3	29·9	26·4	24·8	31·5	26·1	24·5	26·8
1874...	25·4...	22·5	32·0	26·8	30·4	28·7	26·9	29·6	29·2	23·5	22·7
1873...	24·4...	22·5	25·9	24·8	30·1	27·6	25·8	29·3	30·1	21·5	23·1

A review of the figures in the preceding statement proves the unprecedented healthiness of the past year in the largest English towns, every one of which has a Death-rate below that of 1887. One town only in the list, viz., Bristol, has a lower rate than our own. Bristol has long enjoyed a reputation for its remarkably low Death-rate, which in every year of this decade, with the exception of 1887, has been below 20 per 1,000, and only in two years, viz., 1885 and 1887, have we been below the rates of that city, in both of which years our Death-rate was below that of any of the above towns. It is worthy of note, too, that for the first time on record the average Death-rate of the twenty largest English towns has fallen below 20 per 1,000; this year's rate is only 19·0, and that of London only 18·5. The satisfactory position of our Death-rate is demonstrated by the fact that it is 1·5 under that of the average of the twenty large towns.

Death-rate of
large towns
(continued).

The subjoined figures give the total number of deaths, particulars of sex, and the Death-rate for each quarter of last year, as well as the totals for that year and for each of the four preceding years :—

	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	Total 1888.	Total 1887.	Total 1886.	Total 1885.	Total 1884.
Total ...	2,229	1,912	1,734	1,960	7,835	8,536	8,499	8,156	9,043
Males ...	1,170	1,001	902	1,032	4,105	4,382	4,406	4,314	4,797
Females ...	1,059	911	832	928	3,730	4,154	4,093	3,842	4,246
Death-rate	19·90	17·07	15·49	17·50	17·49	19·35	19·57	19·07	21·06

The first or winter quarter of the year had a considerably lower rate of mortality than that of any first quarter since 1884, which had a practically identical Death-rate. This fortunate result was chiefly brought about by a reduced mortality from diseases of the respiratory system, particularly Bronchitis, as compared with that recorded in each of the two previous winter quarters. It is not altogether easy to account for the reduced amount of Bronchial mortality, for though January was generally mild, both the succeeding months were characterised by continuously cold weather. It was probably this continuity of the cold rather than its actual severity at any particular period which caused it to prove less fatal than the equally severe weather of the two preceding years.

Movements in
the Death-rate
during each
quarter of the
year.

In the second quarter, chiefly owing to an unprecedentedly low Death-rate from the seven principal Zymotics, the Death-rate was lower than that of any previous spring quarter in my records, while that of the third quarter was below that of any quarter. The low Death-rate of the summer quarter is without doubt attributable to the pronounced and continuous coolness of this period, so low a Diarrhœal Death-rate not having been recorded since 1879.

Movements in
the Death-rate
(continued).

The Death-rate of the autumn quarter was also a very low one, 2·3 per 1,000 below that of the corresponding period of 1887, and lower than that of the corresponding period of any previous year with the exception of 1886. The smaller mortality during this period is due mainly to a far slighter fatality of Measles than in the fourth quarter of 1887, when this disease prevailed in an epidemic form in the town, though Phthisis and several other diseases occasioned a smaller mortality.

Very cold weather prevailed in October, and the mortality from Respiratory diseases became very high for the time of the year, but this unusual fatality of chest diseases was neutralised by the comparatively small number of deaths from diseases of the same class recorded in November and December when the temperature was unusually high for these months.

Distribution of
Deaths among
Registration
Sub-Districts.

The Deaths were thus distributed among the eight Registrars' districts of the City in each quarter of 1887, and in the whole year, and the three preceding years.

	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	Total Deaths 1888.	Total Deaths 1887.	Total Deaths 1886.	Total Deaths 1885.	Death- rate. 1888
Ladywood (H.)	292	225	205	220	942	1,065	1,037	967	16·5
St. Thomas (H.)	172	137	152	180	641	810	744	776	17·2
St. Martin ...	185	156	170	159	670	779	747	809	16·6
St. George (H.)	355	352	292	366	1,365	1,493	1,575	1,449	21·2
All Saints (W.; L.; B.H.) ...	418	383	322	334	1,457	1,488	1,524	1,441	24·9
Deritend ...	430	351	297	319	1,397	1,499	1,510	1,396	14·0
Duddeston ...	306	257	248	332	1,143	1,148	1,089	1,045	18·3
Edgbaston ...	71	51	48	50	220	254	273	273	8·1

On comparing the figure for each Registration Sub-District with that of the previous year it will be found that this year's number is lower in every instance; in the Sub-Districts of All Saints and Duddeston the decrease has been, however, only trifling, while in that of St. Thomas it has been very large, amounting to more than twenty per cent.

Death-rates of
Registration
Sub-Districts.

I have appended, as usual, to the actual mortality-figures for the past year the Death-rates of the several Registration Sub-Districts, the enumerated populations of each of which I have based on the supposition that the rate of movement of the population of each district which prevailed between 1871 and 1881 has been exactly maintained during the past seven years.

Causes of Death-
rates of certain
Registration
Sub-Districts
appearing too
high.

Owing, however, to extensive demolitions effected since 1881 in the St. Thomas Sub-District it is probable that the population of this area at all events is by this mode of procedure overstated; with respect to the other Sub-Districts, too, the

changes in the movement of population in progress during the last seven years have been so different to those which went on in the decade which ended in 1881 that no reliance can be placed at so long a period since the last census on even the approximate accuracy of the estimated populations on which the Death-Rates in the above table are calculated.

Causes of Death-rates of certain Registration Sub-Districts appearing too high
(continued).

The fact, too, that several of the Registration Sub-Districts have Institutions situated within them which receive persons, who subsequently die there, from all portions of the City, it is necessary in order to fairly compare one district with another to subtract from the total mortality of each district all Deaths which have occurred in Public Institutions.

By this plan the Death-rates of the Sub-Districts of Ladywood, St. Thomas, and St. George are reduced from 16·5, 17·2, and 21·2 respectively to 15·1, 13·5, and 17·4 respectively, while that in All Saints, which contains among other Institutions the Workhouse Infirmary, undergoes by this means a reduction of so much as 12·1, viz., from 24·9 to 12·8.

The Deaths in each of the sixteen Wards of the City for each quarter and for the whole year, together with the totals for each of the three preceding years are set forth in the following Table :—

Distribution of Deaths among the Wards.

	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	Total 1885.	Total 1887.	Total 1886.	Total 1885.
Rotton Park (W., B.H.) ...	312	293	244	243	1,092	1,138	1,142	1,097
All Saints (L.) ...	...	176	156	134	151	617	618	632
Ladywood (H.) ...	...	161	112	104	123	500	588	579
St. Paul ...	...	83	87	70	69	309	343	333
St. George...	...	113	101	72	99	385	421	427
St. Stephen ...	...	101	117	100	143	461	478	473
St. Mary (H.) ...	...	147	134	129	138	548	614	680
St. Bartholomew ...	...	138	132	99	118	487	568	554
Market Hall ...	...	54	48	48	63	213	258	241
St. Thomas ...	...	135	95	116	119	465	571	540
St. Martin...	...	87	73	90	83	333	395	376
Edgbaston...	...	79	58	56	59	252	305	319
Deritend ...	...	154	102	94	101	451	497	560
Bordesley ...	...	205	173	158	165	701	718	676
Duddeston...	...	131	98	108	143	480	472	420
Nechells ...	...	153	133	112	143	541	552	547

As I possess no means of accurately ascertaining the population of the several Wards, it is of course impossible to give their Death-rates, the only true factors for comparing the mortality of one Ward with that of another. I can simply make deductions in fact, from the above statistics by comparing the mortality of any Ward during the period

Ward population.

Ward popula-
tion
(continued).

under review with that in each of the three previous years. In only one Ward, viz., Duddeston, have more Deaths occurred than in the preceding year, and here the increase is small; in each of the other Wards a diminution in the mortality is shown, varying from a very slight amount in All Saints' Ward to large amounts in those of St. Bartholomew, Ladywood, St. Martin, Market Hall, Edgbaston, and St. Thomas. The diminution is greatest in the three last mentioned Wards, amounting in Market Hall and Edgbaston to 17, and in St. Thomas to 18 per cent.

Distribution of
Deaths among
the ætal
periods.

The Deaths have been distributed among certain ætal periods during this and the three previous years as under :—

	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	Total 1888.	Total 1887.	Total 1886.	Total 1885.
Under 1 year of age ...	495	465	558	587	2,105	2,468	2,515	2,253
Between 1 and 5 years	386	285	251	370	1,292	1,360	1,434	1,155
„ 5 „ 20 „	135	100	90	119	444	507	514	477
„ 20 „ 40 „	248	261	205	218	932	997	930	1,053
„ 40 „ 60 „	416	336	308	306	1,366	1,424	1,407	1,510
At 60 years and upwards	549	465	322	360	1,696	1,780	1,699	1,708

A comparison of this year's figures with those of 1887 reveals an unusual fact, viz., a decrease in the mortality at every period of life. Further examination of the figures shows that the reduction has been greatest in persons between 5 and 20 years of age and in infants under 1 year, particularly in the latter. The smaller mortality in infants under 1 year is mainly the result of a reduction of 35 per cent. in the number of Deaths recorded at this period of life in the summer quarter, when owing to the cool weather the Deaths from Infantile Diarrhoea were far less numerous than usual, while the smaller number of Deaths in persons between 5 and 20 years is largely the consequence of fewer deaths at this period of life from diseases of the Respiratory system than in the previous year.

Average age at
death.

The average age at death during each quarter of this and the previous year is as follows :—

	1887.				1888.			
First Quarter ...	31 years and 6 months.				31 years and 5 months.			
Second „ ...	26	„	7	„	31	„	1	„
Third „ ...	22	„	3	„	26	„	6	„
Fourth „ ..	28	„	4	„	25	„	7	„
Whole Year ...	27	„	3	„	28	„	9	„

The differences manifested in the mean age at Death for the several quarters of the year are wide, both when the Death-ages of the year are compared one with the other and with those of the previous year. One striking feature not previously observed is a continuous reduction in the average Death-age

from the first quarter of the year to the last. The mean age at Death for the whole year is, however, a year and a half higher than that of 1887. In the first quarter the Death-age was practically identical with that recorded in the winter quarter of the preceding year, while in the next two quarters it showed a considerable rise on the corresponding periods of 1887, due in the second quarter partly to a heavy fatality in the aged of such diseases as Cancer, Apoplexy, and Bronchitis, and partly to the smaller mortality in children in consequence of fewer Deaths from those Zymotic diseases which are incidental to childhood, and in the third quarter to an unusually small number of Deaths from Diarrhoea, a disease nearly confined, so far at least as its fatal consequences are concerned, to very young children. The lower Death-age in the fourth quarter is occasioned by a larger number of Deaths from diseases of the Bronchial system at the early ages of life and a smaller mortality from the same class of disease at the higher ages.

Average age at
Death
(continued).

The weekly movements of the Death-rate and Death-age Chart are shown on a chart appended to the Report.

INFANT MORTALITY.

Taken as a whole the record of the proportion of Infant Mortality in the City during the past year is a more satisfactory one than that of any previous year in my records, but Birmingham still occupies an unfavourable position in this respect compared with that of several of the large towns. Our amount of Infantile Mortality continues to be, in fact, the principal regrettable feature in our mortality statistics.

Infant
Mortality.

The Deaths under one year of age have numbered 2,105; compared with the Births registered during the year, this figure gives a proportion of 15·4 per cent., against 17·8 in 1887, while, compared with the Deaths at all ages, the ratio is 26·9, against 28·9 in the preceding year. The proportion of infant mortality to births is smaller than in any year since 1881, while that to deaths has been lower in only one previous year in my records, viz., in 1883, when it stood at 26·8, or fractionally below the figure for the year under review. Our rate of infantile mortality, measured by the proportion of deaths under one year to registered births, remains higher than that of England and Wales, which, like our own, was lower than in the previous year, having fallen from 14·5 in 1887, to 13·7 in the year under review.

The Death-rate in infants under one year has also diminished; in 1886 it was 189·6, in 1885 170·2, and in 1887 182·6, while this year it has fallen to 151·3. All these rates of mortality are calculated on the number of infants under one year old estimated to be living in the City at the middle of the several years named.

Infant
Mortality
(continued).

The unusually light mortality from Autumnal Diarrhœa has been the greatest—practically the only—factor in the production of this lessened rate of infant mortality, so that there is only too much reason to fear that the improvement will not be maintained, particularly when one remembers that the proportion of infantile mortality in the previous year, which was characterised by a hot summer, was higher than it had been in any year since 1875. Improper feeding has, doubtless, much to do with the matter, and until parents are sufficiently well educated in this respect, and less careless than at present, a high death-rate at the early ages of life will inevitably be maintained.

Percentage of
Infant deaths
on Births.

The percentage of Deaths under one year to registered Births in our own and the chief English towns during each of the last ten years, is as under:—

Twenty large English Towns.	London.	L'pool.	BIRM.	Manch.	Leeds.	Sheff'd.	Salford.	Newcastle.	Norw'ch.	Bristol.	
1888...	15·4...	14·6	16·8	15·4	17·6	17·3	17·8	18·4	13·7	16·3	12·3
1887...	16·7...	15·8	18·6	17·8	19·1	17·2	17·7	19·5	17·4	15·8	14·9
1886...	16·8...	15·9	18·8	17·6	18·3	18·1	16·8	19·8	15·5	20·2	14·9
1885...	15·4...	14·8	17·4	15·7	17·5	15·5	16·4	17·4	17·2	13·5	15·2
1884...	16·7...	15·5	19·4	17·4	18·3	18·4	17·2	18·4	15·6	18·7	14·3
1883...	15·9...	14·6	18·6	15·9	17·7	16·7	16·3	17·1	16·7	15·1	13·4
1882...	16·1...	15·1	17·8	16·5	17·9	18·0	16·5	17·8	16·6	16·9	14·2
1881...	15·2...	14·8	17·3	15·0	16·1	16·7	15·5	16·3	15·3	14·7	12·5
1880...	17·0...	15·8	19·1	17·2	18·0	17·4	16·5	20·0	17·1	21·6	14·6
1879...	15·1...	14·8	16·3	15·0	16·5	16·1	15·3	17·0	14·5	15·9	14·5

It will be seen that the position of Birmingham, in respect to its infant mortality, measured by the number of births, is far better than usual, and that we compare unfavourably with only London, Newcastle, and Bristol; the proportion of infantile mortality in the latter city, always small, is this year unusually so. It will be noticed, too, that the percentage of deaths under one year to births does not now exceed that of the average of the twenty largest English towns, which on two previous years as shown in the Table, viz., 1879 and 1881, has been lower than during the past year.

Percentage of
Infant deaths
on total deaths

The percentages of deaths under one year to total deaths in the same towns during the same period of time are as follows:—

Twenty large English Towns.	London.	L'pool.	BIRM.	Manch.	Leeds.	Sheff'd.	Salford.	Newcastle.	Norw'ch.	Bristol.	
1888...	25·0...	24·3	24·5	26·9	23·9	27·4	26·7	27·5	25·2	28·0	21·4
1887...	26·0...	25·6	24·4	28·9	23·9	27·2	27·0	28·1	26·9	26·2	21·7
1886...	26·7...	25·8	26·4	29·6	25·3	27·9	28·9	30·8	27·5	30·1	23·5
1885...	25·1...	24·5	24·5	27·6	24·0	26·8	27·7	28·3	25·3	22·5	24·0
1884...	26·8...	25·7	27·1	28·9	25·1	26·4	28·3	29·4	26·7	30·1	24·5
1883...	25·6...	24·2	24·5	26·8	23·0	24·8	26·1	27·2	24·1	26·1	24·0
1882...	25·6...	24·3	24·5	29·1	24·6	27·8	28·4	24·0	26·9	27·7	24·4
1881...	24·9...	24·1	24·4	27·7	23·3	28·5	27·9	27·9	25·8	25·5	22·0
1880...	26·8...	25·7	26·7	32·1	24·0	29·4	27·5	29·3	28·0	30·0	24·0
1879...	23·9...	23·2	23·3	27·5	22·4	26·3	25·6	27·3	22·6	24·7	24·7

Our relative position in this Table is not nearly so good as in the last, as only three towns in the list—Leeds, Salford, and Norwich—have a worse record than our own. Last year, however, Birmingham had a higher proportion in this respect than any other town in the list.

Percentage of
Infant Deaths
on total Deaths
(continued).

The number of deaths under five years of age is 3,397, as compared with 3,949 in 1886, 3,828 in 1887, and 4,030, the average number in the ten years 1878–1887 inclusive.

Deaths under
five years.

The percentage on total deaths is lower than in any previous year, except 1885, when it was only 41·8, against 46·5 in 1886, 44·8 in 1887, 43·4 in the past year, and 47·2 the average percentage of the preceding ten years. As in all recent years, the extraordinarily small mortality from Scarlet Fever and the low Birth-rate greatly assisted to reduce the number of Deaths in children under five years of age; in addition to these circumstances, the unusually low mortality from Infantile Diarrhœa materially aided in diminishing the proportion of Deaths in the early years of life.

The second of the following Tables contains some very valuable information, because, on account of the great differences between one locality and another, with regard to the age and sex distribution of their respective populations, the mere statement of the death-rate at all ages may be of itself distinctly misleading. I have, therefore, as in former years, given the death-rate of each sex at certain periods of life, together with the corresponding figures for the whole country (Farr) for purposes of comparison. The first Table supplies the data on which the rates for our town are calculated.

TABLE SHOWING POPULATION AND NUMBER OF DEATHS OF PERSONS, MALES AND FEMALES, AT ALL AGES, AND AT FIVE GROUPS OF AGES, IN THE CITY, DURING THE YEAR 1888.

Population and
Deaths at
certain atal
periods.

	PERSONS.		MALES.		FEMALES.	
	Estimated Population 1888.	Deaths, 1888.	Estimated Population, 1888.	Deaths, 1888.	Estimated Population, 1888.	Deaths, 1888.
All ages	447,912	7,835	216,718	4,105	231,194	3,730
Under 5 years ...	66,275	3,397	33,012	1,811	263	1,586
5 to 20 „ ...	146,413	444	71,195	226	75,218	218
20 to 40 „ ...	136,903	932	65,412	493	71,491	439
40 to 60 „ ...	73,875	1,366	36,260	771	37,615	595
60 and upwards	24,446	1,696	10,839	804	13,607	892

Death-rates at
certain aetal
periods.

TABLE SHOWING RATE OF MORTALITY PER 1,000 PERSONS
MALES AND FEMALES, LIVING DURING 1888, AT ALL AGES,
AND AT FIVE GROUPS OF AGES, COMPARED WITH THE
ENGLISH LIFE TABLE RATES (FARR).

	PERSONS.		MALES.		FEMALES.	
	Birmingham	English Life Table.	Birmingham	English Life Table.	Birmingham	English Life Table.
All ages... ..	17·5	21·5	18·9	22·4	16·1	20·7
Under 5 years ...	51·3	65·7	54·9	70·1	47·7	61·3
5 to 20 „ ...	3·0	7·1	3·2	7·0	2·9	7·2
20 to 40 „ ...	6·8	10·3	7·5	10·1	6·1	10·5
40 to 60 „ ...	18·5	18·3	21·3	19·4	15·8	17·2
60 and upwards	69·4	71·7	74·2	73·9	65·6	69·7

The latter Table shows how much greater the rate or mortality of the earlier and later periods of life is than that of middle life ; for while our death-rate under five years was 51·3 per 1,000 living at that age, and at 60 years and upwards 69·4, in young people between 5 and 20 it was only 3·0, and in persons between 20 and 40 only 6·8. The incidence of disease, too, varies greatly at different stages of life. The zymotic, developmental, and many of the local diseases, are peculiar and particularly fatal to the very young, while Phthisis (Consumption) is a disease of early manhood, and Cancer and Apoplexy are maladies of maturer years. As old age approaches, many of the local diseases, particularly Bronchitis, prove extremely fatal.

Our relative distribution of the mortality among the sexes and at different ages invariably disagrees very considerably with that of the English Life Table, but this year the disagreement is more marked than usual. The distinguishing feature of our death-rates is, that while the normal rate of mortality of females between 5 and 40 exceeds that of males, our death-rate at this period of life in males is always in excess of that of females.

This year our rates compare favourably with that of the English Life Table in every instance, except in males over 40

years of age, whose rate of mortality is above that observed on the average in the whole of England and Wales.

Death-rates at
certain ætal
periods
(continued)

In urban populations the death-rate is generally somewhat greater among the male than among the female population; in Birmingham the excess of male over female mortality is considerable, amounting, during the period under notice to 2·8 per 1,000 persons, against 2·2 in the previous year. The disparity in the mortality of the two sexes is, however, less than it has been in some previous years, notably in 1884, when it amounted to so much as 3·8 per 1,000; it is still, however, 1·1 greater than that of the English Life Table.

The death-rate in children under five years is an unusually low one, and 7·5 per 1,000 below that of the previous year. The proportion of male to female mortality at this period of life is very similar to that recorded in 1887, but is much lower than that of previous years. The comparatively low death-rate at the early ages of life is mainly the result of a small mortality from the zymotic diseases, particularly from Diarrhœa.

The death-rate in persons between 5 and 20 is lower than ever; it is always low in Birmingham, but is now considerably less than that of the English Life Table. The same remark applies to the mortality at the next period of life, viz., between 20 and 40 years, except that the divergence between our rate and the normal one is not so great as at the preceding ætal period.

The only portion of life at which our rate of mortality exceeds that of the English Life Table is that between 40 and 60 years of age, but here the excess is only trifling, 0·2 per 1,000, and occurs wholly in males. Our death-rates for this period always compare less favourably with the normal rates than those for other periods of life.

Persons over 60 years of age have had a lower death-rate than usual, viz., 5·1 per 1,000 living at these ages below that of the preceding year, when the mortality in elderly people was exceptionally heavy. The relatively small death-rate at the higher ages is the result, for the most part, of the mild weather which prevailed in the last two months of the year, when the deaths from Bronchial and some other affections were, in consequence, fewer in number than they usually are at this time of the year.

Particulars respecting the deaths and death-rates from all causes and from the seven principal zymotic diseases, as

well as the mortality of children under five and of persons over sixty years of age during the past sixteen years are given in the annexed Table:—

ANALYSIS OF THE MORTALITY IN THE CITY OF BIRMINGHAM IN EACH OF
THE SIXTEEN YEARS, 1873 TO 1888.

YEAR.	Deaths of Infants under 1 year.	Proportion of Deaths under 1 year to 1,000 Births.	DEATHS.				Annual rate per 1,000 living.			
			AT ALL AGES.		FROM ALL CAUSE.		AT ALL AGES.		FROM ALL CAUSES.	
			From all Causes.	From Seven Zymotic Diseases.	Of Children under 5 years.	Of Persons over 60 years.	From all Causes.	From Seven Zymotic Diseases.	Of Children under 5 years.	Of Persons over 60 years.
1873	2627	181	8990	2042	4424	1521	24·8	5·6	12·4	4·3
1874	2688	178	9665	2652	4589	1459	26·8	7·3	12·7	4·4
1875	2957	196	9668	2145	4785	1590	26·3	5·9	13·0	4·3
1876	2537	160	8330	1336	3881	1441	22·4	3·6	10·4	3·9
1877	2628	164	9038	1576	4460	1521	23·9	4·2	11·8	4·0
1878	2766	170	9662	2421	5128	1506	25·2	6·3	13·4	4·0
1879	2385	150	8650	1251	4095	1686	21·8	3·2	10·5	4·3
1880	2601	172	8088	1324	4043	1397	20·5	3·4	10·2	3·5
1881	2212	150	7938	1128	3741	1506	19·7	2·8	9·3	3·7
1882	2452	165	8425	1413	3979	1459	20·6	3·4	9·8	3·7
1883	2338	159	8714	1306	3818	1704	21·0	3·1	9·2	4·1
1884	2611	174	9043	1681	4315	1597	21·1	3·9	10·0	3·7
1885	2253	157	8156	876	3408	1708	19·1	2·0	8·0	4·0
1886	2515	176	8499	1383	3949	1699	19·6	3·2	9·1	3·9
1887	2468	178	8536	1336	3828	1780	19·4	3·0	8·7	4·0
Average 1873 to 1887	2536	169	8760	1591	4163	1572	22·1	4·0	10·6	4·0
1888	2105	154	7835	875	3397	1696	17·5	2·0	7·6	3·8

Full details of the mortality from the numerous causes of death, giving the numbers at the various groups of ages and in the several Registration Sub-Districts, together with the totals in the whole City, are set forth in Table A, on pages 37–39.

SPECIFIED CAUSES OF DEATH.

The distribution of the mortality among the eight primary Specified causes of Death. classes of disease has been as under :—

Class	I.—Zymotic Diseases	...	970, or 12·4 per cent. of total mortality.		
„	II.—Parasitic	„	6, or 0·1	„	„
„	III.—Dietic	„	26, or 0·3	„	„
„	IV.—Constitutional Diseases		1,247, or 15·9	„	„
„	V.—Developmental	„	656, or 8·4	„	„
„	VI.—Local	„	3,971, or 50·7	„	„
„	VII.—Violent Deaths	...	341, or 4·3	„	„
„	VIII.—Deaths from ill-defined and not specified causes		618, or 7·9	„	„

This year's distribution of mortality differs materially from that observed in any previous year, excepting 1885, with which it is in very close agreement. In no previous year, except the one just mentioned, has the percentage of mortality from Zymotic disease been so low as in the year under review, one consequence being that the relative proportion of all the other principal classes of disease is higher than usual. The actual numbers of deaths recorded in each class are, however, considerably lower than usual, and lower than in 1887 with one exception, the deaths in the Constitutional class of disease being very slightly more numerous than in the previous year.

CLASS I.—ZYMOTIC DISEASES.

The Deaths classed under this heading, which includes, Zymotic Diseases. in addition to the seven principal Zymotic diseases, several minor diseases of a Malarial, Venereal, or Septic nature, number 970; they are equal to 12·4 per cent. of the total mortality, and give an annual Death-rate of 2·2 per 1,000 persons against 3·4 in 1886 and 3·3 in 1887. The considerable reduction in the Death-rate from this class of disease is due to a greatly lessened mortality from

THE SEVEN PRINCIPAL ZYMOTICS,

viz., Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever, and Diarrhœa, which have resulted in 875 Seven Principal Zymotics. Deaths, a lower number than in any previous year in my records, which extend back to 1870. In the previous fifteen years of my tenure of office the number has averaged 1,591, so that last year's number, notwithstanding a continual increase

Seven Principal
Zymotics
(continued).

of population, is little more than one-half that annually recorded on an average during the preceding fifteen years. The permanent character of some of this improvement is proved by the fact that whereas during the eight years which ended with 1880 the average number of deaths from these diseases was 1,843, during the last eight years the number has averaged 1,250, or nearly 600 less. One's satisfaction at this splendid improvement is enhanced by the knowledge that every one of the seven diseases in question has shared in this greatly diminished mortality during the past year. Scarlet Fever is the only one of these diseases which has occasioned a higher mortality than in the previous year, and in this instance the augmentation is very slight.

Zymotic Death-
rate.

The Death-rate from the seven principal Zymotics is 1·95, a lower rate than in any previous year when expressed in two decimal places, the nearest approach being one of 2·05 in the year 1885; the rate from these diseases in 1887 was 3·0.

Zymotic Death-
rate of large
towns.

The Zymotic Death-rate of the City is compared with the rates of the chief English towns during each of the past ten years in the following Table :—

	Twenty large English Towns.	London.	L'pool.	BIRM.	Manch.	Leeds.	Sheff'd.	Salford.	Newcastle.	Norw'ch.	Bristol
1888...	2·4...	2·5	2·5	2·0	3·1	2·7	3·6	3·5	1·4	2·1	1·3
1887...	3·2...	3·0	3·9	3·0	4·9	2·7	4·2	4·4	3·4	3·7	3·0
1886...	2·8...	2·7	3·1	3·2	3·0	3·4	2·9	3·8	2·5	3·5	2·2
1885...	2·7...	2·8	3·6	2·0	3·1	2·2	2·7	3·4	4·4	2·1	2·3
1884...	3·5...	3·3	4·5	3·9	3·6	4·9	4·2	4·2	3·2	3·1	1·8
1883...	2·6...	2·8	4·5	3·1	3·6	4·0	4·0	3·3	4·3	1·0	1·2
1882...	3·9...	3·4	4·4	3·4	3·7	3·4	2·8	3·8	3·3	2·4	2·3
1881...	3·4...	3·6	4·5	2·8	2·3	2·9	2·7	2·9	2·6	1·7	2·3
1880...	4·0...	3·7	5·1	3·4	4·2	3·3	4·4	6·8	3·2	5·8	3·1
1879...	3·2...	3·3	6·0	3·2	3·4	3·3	3·5	4·0	3·9	2·2	2·1

The most conspicuous feature in the above Table is the general lowness of the Zymotic Death-rate of the past year, that of the twenty large towns as a whole being 0·2 below that of any previous year. This diminution is mainly accounted for by the comparative lightness of the mortality from Infantile Diarrhœa throughout the country. Our Zymotic Death-rate, though again lower than that of the average of the twenty largest towns, is higher than that of either Newcastle or Bristol, the rate in the latter city being only 1·3.

The percentage of Zymotic Deaths on total Deaths in the same large English towns for the last ten years is given below :—

	Twenty large English Towns.	London.	Lpool.	BIRM.	Manch.	Leeds.	Sheffld.	Salford	Newcastle.	Norw.h.	Bristol.
1888...	12.6...	13.7	12.3	11.2	12.0	13.1	17.5	16.7	7.1	10.6	7.6
1887...	15.6...	15.4	16.6	15.7	17.0	12.8	19.7	20.1	13.4	18.1	14.8
1886...	13.7...	13.5	13.2	16.3	11.6	15.7	14.5	17.2	11.2	15.1	11.0
1885...	13.3...	14.1	15.1	10.7	11.6	11.4	13.1	16.2	17.0	10.3	11.7
1884...	16.3...	16.4	17.8	18.6	13.6	20.2	18.6	18.9	14.0	14.7	10.0
1883...	12.0...	13.4	16.8	14.9	12.9	17.0	17.3	14.9	17.0	5.1	6.9
1882...	16.1...	16.3	16.6	16.5	14.9	15.1	11.5	16.8	14.4	12.0	12.3
1881...	15.5...	17.0	16.8	14.2	9.1	13.6	13.0	12.9	12.1	8.7	11.7
1880...	17.7...	16.8	18.6	16.4	16.4	15.7	21.0	26.2	14.4	23.7	15.4
1879...	13.8...	14.3	21.2	14.5	12.8	14.6	16.5	16.1	16.5	10.0	10.1

It will be seen that the proportion of Zymotic, to total mortality varies widely, ranging from only 7.1 in Newcastle and 7.6 in Bristol to 17.5 in Sheffield. In each of the towns, however, except Sheffield, the proportion during the past year has been lower than usual, Norwich, Newcastle, and Bristol having a better record than Birmingham.

As is almost invariably the case,

DIARRHŒA

has proved the most fatal of the Zymotic diseases. The deaths attributed to this cause have numbered, however, only 305, as compared with 729 in 1886, 550 in 1887, and 553 the annual average in the five years 1883-87. In only one previous year, viz., 1879, when only 234 Deaths were set down to this cause, has the Diarrhœal mortality been so low as in the period under review. The annual Death-rate from this cause is 0.7, against rates of 1.7 and 1.2 in the years 1886 and 1887 respectively ; in the summer quarter it was 1.5, as compared with 5.0 and 4.0 in the summer quarters of 1886 and 1887 respectively.

Diarrhœa.

Diarrhœal Death-rate

The intimate relation subsisting between a high temperature and Diarrhœal mortality has been once more exemplified in the past year, the summer quarter of which had both a smaller mortality from this disease and a lower temperature than any similar period since 1879. From the end of May to the middle of October every day with the exception of eight or ten had a temperature below the average. To show how close, however, is the relationship between a mean temperature over 60° and a high Diarrhœal mortality, and a temperature below 60° and a comparatively low Diarrhœal Death-

Temperature in relation to Diarrhœa.

Temperature in
relation to
Diarrhœa
(continued).

rate, I have arranged below the summer quarters since 1873 in the order of their respective temperatures, beginning with the highest, and have given for each summer quarter the mean temperature, the amount of its departure from the average, rainfall, and particulars of Diarrhœal mortality.

Summer Quarter.	Mean Temperature of the Air.	Departure from average Temperature of 20 years.	Rainfall in inches.	Mortality from Diarrhœa.	
				Deaths.	Annual Rate per 1000 of the Population.
1884	61°·4	+2°·2	5·59	559	5·3
1876	61°·3	+2°·1	8·47	492	5·3
1878	60°·9	+1°·7	10·57	534	5·6
1886	60°·1	+0°·9	9·04	543	5·0
1887	60°·1	+0°·9	5·64	442	4·0
1875	60°·0	+0°·8	13·83	656	7·2
1874	59°·9	+0°·7	7·79	486	5·4
1880	59°·8	+0°·6	10·23	609	6·2
Average of Eight Warmest Summers.	60°·4	+1°·2	8·89	540	5·5
1873	59°·1	—0°·1	10·73	535	6·0
1877	58°·4	—0°·8	11·90	316	3·3
1883	58°·3	—0°·9	10·48	274	2·6
1879	58°·2	—1°·0	13·28	81	0·9
1881	58°·1	—1°·1	8·49	210	2·1
1885	57°·9	—1°·3	5·76	236	2·2
1882	57°·6	—1°·6	9·34	387	3·8
1888	56°·6	—2°·6	10·05	166	1·5
Average of Eight Coldest Summers.	58°·0	—1°·2	10·00	276	2·8
Average of whole period.	59°·2	0°·0	9·45	408	4·2

It will be seen that a fall in the air temperature in the shade of 2°·4 at or about 60° F., together with the smaller amount of sunshine and the consequently less warmth of the

ground which these meteorological influences are sure to involve, is sufficient to set up certain conditions capable of producing a Diarrhœal mortality only on an average as nearly as possible one half that occasioned by the higher temperature and more continued sun-heat of the first series of years.

Temperature in
relation to
Diarrhœa
(continued).

The Registration Sub-District of Duddeston has had the largest proportionate mortality from this disease, which is answerable for only a comparatively small Death-rate in the Registration Sub-District of Ladywood.

The great majority of deaths occurred, as always, in young children, 68 per cent. being in infants under one year of age, and 92 per cent. in children under five years of age; 58 per cent. of the eight per cent. remaining were in persons over 60 years of age.

Infancy and old
age in relation
to Diarrhœa.

In accordance with the mode of classification adopted by the Registrar-General the deaths under this heading include those from Dysentery, and also those where Diarrhœa, though put down as the secondary cause of death, is associated with Debility, Marasmus, or other ill-defined forms of illness.

An abstract of Dr. Ballard's Report on his eight years' enquiry into the causes of this disease will be found on pages 46-53.

Dr. Ballard's
Report on
Diarrhœa.

The mortality from the next most fatal Zymotic,

WHOOPIING COUGH,

is always considerable, and is generally large; but, unlike several of the other infectious diseases, it does not appear to assert itself in waves of markedly great or small severity. One year in my records, 1886, stands out, however, as one of low mortality from this disease, only 94 deaths being attributed to this cause; in 1887 the deaths numbered 379, and in the year under notice 235 against 293, the average number in the ten years 1878-87, so that the mortality in the past year has been somewhat smaller than usual. The chief incidence of this disease is always found to be upon children between one and five years of age, and to almost invariably occur in the spring quarter; the year just ended, however, was exceptional, as the disease was decidedly more fatal in the month of December than in any other portion of the year.

Whooping
Cough.

It is greatly to be regretted that a disease so highly infectious and so often fatal should be commonly regarded with such indifference that care is not used to any great extent either to prevent the spread of the infection or to protect the sufferer, even during the acute stage of the disease, from the serious complications which frequently arise from exposure to cold, and lead to a fatal termination.

Whooping
Cough

The Registration Sub-District of Ladywood has had the largest proportionate mortality from this cause.

(continued).

The number of deaths from

MEASLES

Measles.

is in close accord with that registered on an average during the previous ten years; 191 deaths have been recorded during the past year against 179, the average number in the ten years 1878-87, and 237 in 1887.

The Registration Sub-District of Duddeston has had a far heavier mortality from this disease than other portions of the City.

Map.

A Map at the end of the Report is marked with red crosses showing the portions of the City where deaths from this disease have occurred during the past year.

FEVER.

Fever.

Under this heading are included all deaths from Typhus, Typhoid, and Simple Continued Fevers. These diseases have given rise during the year to 64 deaths, the lowest number ever recorded by me.

Typhus Fever.

Typhus Fever, formerly a scourge of large and densely populated communities, is now unknown in Birmingham, for during my whole term of office I have not met with a true case of this disease.

Typhoid Fever.

Enteric or Typhoid Fever is credited with 59 deaths, while the simple and ill-defined forms of Fever are made to account for five deaths.

Fever Death-rate.

The rate of mortality from this group of diseases is 0.14 per 1,000 persons against 0.18 in both 1885 and 1887, and 0.15 in 1886. On a glance down the statement below it will be seen that an immense reduction is observable in the death-rate from this disease since 1870, it now being less than one-fourth of what it was in that year; the reduction has also been fairly continuous, the slight increase which occurred in the previous year, and which I stated in my last Report was most probably a temporary one, being more than counterbalanced by the reduction during the past year, so that the rate for the period under review is lower than that of any previous year. It will be seen that similar results have been obtained in the twenty largest English towns as a whole, where the average fever death-rate is also now lower than ever. A similar reduction is observable, too, in the whole of England and Wales, the mean annual death-rate from Fever, which was 0.91, 0.89, and 0.49 in the three decades, 1851-60, 1861-70, 1871-80, not exceeding for the whole country 0.25 in the first eight years of the current

decennium. This practically continuous and pronounced reduction in maladies which are known as “filth diseases,” and which are universally considered by sanitary experts to be the best of all tests of the sanitary state of a district, speaks loudly for the improved sanitation of the country, and is a welcome augury of the still better results which will follow the further sanitary progress which must inevitably be made in the near future.

The large diminution both in our own Fever Death-rate and in that of the twenty large English towns since 1870 may be readily seen from the subjoined statement :—

Per 1,000 per annum.						
Birmingham.				20 large towns.		
1870	...	...	·63	...	...	·90
1871	...	...	·53	...	...	·78
1872	...	...	·54	...	...	·60
1873	...	...	·57	...	...	·59
1874	...	...	·56	...	...	·58
1875	...	...	·56	...	...	·52
1876	...	...	·40	...	...	·45
1877	...	...	·38	...	...	·42
1878	...	...	·38	...	...	·42
1879	...	...	·22	...	...	·29
1880	...	...	·21	...	...	·30
1881	...	...	·16	...	...	·31
1882	...	...	·21	...	...	·36
1883	...	...	·20	...	...	·33
1884	...	...	·19	...	...	·28
1885	...	...	·18	...	...	·22
1886	...	...	·15	...	...	·22
1887	...	...	·18	...	...	·21
1888	...	...	·14	...	...	·19

The fatal cases of Typhoid Fever and their positions in the City are indicated by blue crosses on the Map appended to the Report.

Diphtheria and Scarlet Fever have each been certified as the cause of death in 40 instances. It is highly gratifying to be in a position to state that the mortality from

DIPHTHERIA,

both actually and in proportion to population, has, like that from Fever, never been lower in any previous year as shown

Diphtheria.

Diphtheria
(continued).

by my records. What I have said with respect to Fever applies, in fact, generally speaking, also to Diphtheria, with this exception, that whereas our Diphtheria Death-rate is, when calculated to three decimal places, lower than in any former year, the rate for the twenty large towns has never been so high in any year covered by the annexed statement, which goes back to 1873. The comparatively high rate of mortality from this disease in the twenty largest English towns is mainly referable to a continually increasing Diphtheritic mortality in the Metropolis during recent years.

Diphtheria
Death-rate

Our rate of mortality from this cause during the past sixteen years is given and compared with that of the twenty largest English towns during the same period in the following statement :—

DEATH-RATE FROM DIPHTHERIA PER *1,000 OF THE POPULATION.

				Birmingham.				Twenty Large Towns.
1873	...	...	...	·31	...	..	...	·09
1874	...	...	...	·21	...	...	...	·16
1875	..	...	...	·16	...	...	...	·12
1876	...	...	...	·16	...	...	...	·09
1877	...	...	...	·14	...	...	...	·09
1878	...	...	...	·22	...	...	...	·13
1879	...	...	...	·18	...	...	...	·13
1880	...	...	...	·13	...	...	...	·12
1881	...	...	...	·14	...	...	...	·15
1882	...	...	...	·12	...	...	...	·17
1883	...	...	...	·11	...	...	...	·17
1884	...	...	...	·09	...	...	...	·18
1885	...	...	...	·11	...	...	...	·17
1886	...	...	...	·17	...	...	...	·16
1887	...	...	...	·13	...	...	...	·18
1888	...	...	...	·09	...	...	...	·22

The mortality from

SCARLET FEVER,

Scarlet Fever.

though slightly greater than that of either of the two previous years, is still extremely low compared with what it was in every year previous to 1885. This is well shown by the fact that whilst during the last four years the deaths from this cause have occurred at the rate of only 36 per annum, in the previous fifteen years, 1870 to 1884, the deaths numbered on an average 346, or nearly ten times as many.

Map.

The distribution in the City of the deaths from this cause will be found indicated on the Map in the Appendix.

Further remarks upon Scarlet Fever will be found at page 63, and under the heading City Hospital at page 64.;

SMALLPOX.

I am happy to be able to report that no death from this ^{Smallpox.} disease has been registered in the City during the period under notice. Eighteen cases have been reported to the Department, 13 of which occurred in the first quarter, one in April, three in May, and one in September, so that only one case has been notified to me since last May last.

DEATHS AND DEATH-RATES FROM SMALLPOX PER 100,000 OF THE ^{Twenty towns compared.} POPULATION IN 20 LARGE ENGLISH TOWNS.

Town.	Population.	Deaths from Smallpox in the year 1888.		Rate per 100,000.		
		1888.	1887.	1886.	1885.	
London	4,282,921	9	0·2	0·2	0·1	22·0
Brighton	119,983	0	0·0	0·0	0·0	0·9
Portsmouth	139,575	0	0·0	2·2	0·7	0·0
Norwich	93,675	0	0·0	0·0	0·0	0·0
Plymouth	77,674	0	0·0	0·0	0·0	0·0
Bristol	226,510	26	11·5	5·8	3·2	4·6
Wolverhampton	81,691	0	0·0	0·0	0·0	0·0
Birmingham	447,912	0	0·0	0·5	0·0	2·8
Leicester	146,790	0	0·0	0·0	0·0	0·0
Nottingham	230,921	12	5·2	0·0	0·9	0·9
Liverpool	599,738	1	0·2	0·2	4·9	7·9
Manchester... ..	378,164	22	5·8	1·6	0·3	9·8
Salford	226,336	0	0·0	0·0	0·0	0·0
Oldham	138,220	14	10·1	0·0	0·0	0·0
Bradford	229,721	2	0·9	0·0	0·0	0·9
Leeds	351,210	18	5·1	0·3	0·3	0·6
Sheffield	321,711	408	126·8	87·9	0·0	2·6
Hull	202,359	19	9·4	1·0	0·0	4·8
Sunderland... ..	131,919	1	0·8	0·0	0·0	13·6
Newcastle-on-Tyne	159,003	0	0·0	0·6	0·0	2·0
In 20 towns	8,586,033	532	6·2	3·7	0·6	12·8

The number of Cases and Deaths in each quarter since ^{Cases and Deaths in the City from 1871.} the year 1871 is as follows :—

DATE.		Cases.		Deaths.	
1871.					
November 11th to end of year ...	...	359		43	
	Total ...	—	359	—	43
1872.					
1st Quarter	...	...	798	96	
2nd „	...	...	632	92	
3rd „	...	...	355	67	
4th „	...	...	192	44	
	Total ...	—	1,977	—	299

Cases and
Deaths in the
City from 1871
(continued).

DATE				Cases.	Deaths.
1873.					
1st Quarter	...	...	...	171	29
2nd "	...	...	...	246	37
3rd "	...	...	...	124	18
4th "	...	...	...	253	38
Total				794	122
1874.					
1st Quarter	...	...	...	757	123
2nd "	...	...	...	1,303	196
3rd "	...	...	...	1,059	165
4th "	...	...	...	672	153
Total				3,791	637
1875					
1st Quarter	...	...	...	366	85
2nd "	...	...	...	347	72
3rd "	...	...	...	95	14
4th "	...	...	...	16	2
Total				824	173
1876.					
1st Quarter	...	...	...	2	0
2nd "	...	...	...	2	0
3rd "	...	...	...	2	0
4th "	...	...	...	5	0
Total				11	0
1877.					
1st Quarter	...	...	...	7	1
2nd "	...	...	...	20	3
3rd "	...	...	...	20	3
4th "	...	...	...	3	1
Total				50	8
1878.					
1st Quarter	...	...	...	3	0
2nd "	...	...	...	4	0
3rd "	...	...	...	10	2
4th "	...	...	...	10	3
Total				27	5
1879.					
1st Quarter	...	...	...	1	0
2nd "	...	...	...	0	0
3rd "	...	...	...	3	0
4th "	...	...	...	0	0
Total				4	0
1880.					
1st Quarter	...	...	...	2	0
2nd "	...	...	...	5	1
3rd "	...	...	...	8	1
4th "	...	...	...	3	0
Total				18	2
1881.					
1st Quarter	...	...	...	5	5
2nd "	...	...	...	9	1
3rd "	...	...	...	2	0
4th "	...	...	...	0	0
Total				16	6

DATE.				Cases.	Deaths.	Cases and Deaths in the City from 1871 (continued).	
1882.							
1st Quarter	...	...	...	0	0		
2nd "	...	...	...	43	6		
3rd "	...	...	...	33	9		
4th "	...	...	...	13	2		
Total				...	89	17	
1883.							
1st Quarter	...	...	...	48	7		
2nd "	...	...	...	152	9		
3rd "	...	...	...	567	54		
4th "	...	...	...	435	40		
Total				...	1,202	110	
1884.							
1st Quarter	...	...	...	384	54		
2nd "	...	...	...	64	8		
3rd "	...	...	...	13	1		
4th "	...	...	...	10	1		
Total				...	471	64	
1885.							
1st Quarter	...	...	...	69	12		
2nd "	...	...	...	4	0		
3rd "	...	...	...	9	0		
4th "	...	...	...	2	0		
Total				...	84	12	
1886.							
1st Quarter	...	...	...	1	0		
2nd "	...	...	...	1	0		
3rd "	...	...	...	0	0		
4th "	...	...	...	0	0		
Total				...	2	0	
1887.							
1st Quarter	...	...	...	0	0		
2nd "	...	...	...	1	1		
3rd "	...	...	...	1	0		
4th "	...	...	...	10	1		
Total				...	12	2	
1888.							
1st Quarter	...	...	...	13	0		
2nd "	...	...	...	4	0		
3rd "	...	...	...	1	0		
4th "	...	...	...	0	0		
Total				...	18	0	
Grand Total				...	9,749	1,500	

DISEASE MAP.

A map marked with spots and crosses to show the locality and general distribution of three of the most important zymotic diseases, viz: Measles, Scarlet Fever and Typhoid Fever is appended to the Report. The map for the present year happily contains fewer marks than that of any previous year, with the exception of 1885. The general distribution of these

Disease Map
(continued).

diseases is very similar to that observed in previous years. Measles has, however, been much more fatal in Duddeston Ward, particularly in the neighbourhood of Great Francis Street, than in other portions of the City. The south-eastern side of the town too, comprising the Wards of Saint Martin, Saint Bartholomew, Deritend and Bordesley, has been unusually free from Deaths from these diseases. It will be noticed that, as in the previous year, if a line be drawn down Hagley Road, Islington Row, Lee Bank Road, Sun Street and Saint Luke's Road to the river Rea, which is the boundary of the City in this neighbourhood, only one case of these diseases has occurred to the south-westward or Edgbaston side of the line, and this a case of Measles in Spring Vale, close to the boundary line. As in previous years the only other portion of the City free from Deaths from these diseases is that including the greater portion of the wards of Saint Paul and Market Hall, a district which is almost entirely occupied by shops, warehouses, business premises and the like, and contains a very small population at night.

So few Deaths are attributed to the affections belonging to the next two classes of disease, viz :—

II.—*PARASITIC*, AND III.—*DIETIC DISEASES*,

Parasitic and
Dietic Diseases.

that it is not worth while to deal with them separately. During the past year the Deaths debited to these classes of disease have been fewer than usual, viz.: 32 against 57 in the previous year.

IV.—*CONSTITUTIONAL DISEASES*.

Constitutional
Diseases.

The Deaths in this class are almost identical in number with those recorded in 1887, when 1,242 Deaths were referred to it, against 1,247 in the period under notice. The Death-rate from this group of diseases is 2·8, identical with that in each of the two previous years. The deaths from *Tabes Mesenterica* have been considerably more numerous than in the previous year and those from *Phthisis* somewhat less so, but none of the other diseases in this class have an appreciably different mortality from that recorded in the previous year.

Tabes Mesenterica.

Phthisis.

V.—*DEVELOPMENTAL DISEASES*.

Developmental
Diseases.

The number of Deaths in this class continues to decrease, for while it was 729 in 1885, 713 in 1886, and 699 in 1887, only 656 Deaths have been allotted to this group of diseases during the past year.

VI.—LOCAL DISEASES.

The number of Deaths in this class is smaller than in the previous year, but principally owing to the relatively small amount of mortality from zymotic disease the proportion to total mortality has risen from 47·0 to 50·7 per cent., so that the Deaths in this class amount to more than one half of the whole number from all causes. This class of disease, in fact, including as it necessarily does affections of every organ in the body, is a comprehensive one, and includes several of the most fatal diseases which flesh is heir to; it is relatively most fatal to persons who have passed life's meridian, though some of the diseases in it, such as Inflammation of the Brain, Convulsions, Bronchitis, and Pneumonia, are also very destructive to the young, while the intervening ages, viz.: those from 5 to 40 years, experience a trivial mortality from these diseases. During the past year 3,971 Deaths have been deferred to this class as compared with 4,105 in 1885, 3,970 in 1886, and 4,012 in 1887; they give a Death-rate of 8·9 against 9·1 in the previous year. In point of fatality Lung diseases stand at the head of the list; Bronchitis has been somewhat less fatal than in 1887, Pneumonia more so. The mortality from diseases of the Brain shows no considerable difference from that of the preceding year, while the Deaths from affections of the Heart continue to increase proportionately faster than the increase of population. The number of Deaths from Childbirth, which has been nearly stationary for some years, shows a considerable diminution during the past year.

Local Diseases

Lung Diseases.

Brain Diseases

Heart Diseases.

Childbirth.

VII.—VIOLENT DEATHS.

These have been rather fewer in number than usual. This year's figure is 341 against 373 in 1887, and is equal to a rate of mortality of 0·8 per 1,000 persons.

Violent Deaths.

VIII.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES.

A number of diseases either not readily definable or not properly belonging to any of the above groups of disease are relegated to this class. They include such indefinite diseases as Atrophy, Debility, Inanition, Marasmus and Hæmorrhage. Many of them such as Atrophy are not diseases in the proper sense of the term but the consequence of disease, and doubtless, with greater care in certifying, the true cause of Death might have been given in many instances, so that I am convinced that the number of Deaths which has to be placed in this unsatisfactory class of diseases is still too great though very much less than in the previous year, when 715 Deaths were set down to this group, while this year 618 Deaths have been so classified.

Deaths from ill-defined and not specified causes.

CERTIFICATION OF THE CAUSES OF DEATH.

Certification of causes of Death.

Uncertified Deaths.

Inquests

The percentage of uncertified Deaths which has been becoming higher, I regret to find, for some years, continues to increase, having risen from 1·1 in 1883. and 1·5 in 1884 to 2·2 in 1885, 2·3 in both 1886 and 1887, and still further to 2·6 in the past year. The high percentage of uncertified deaths is a matter to be regretted, chiefly because the causes of death obtained from the relatives and given in the death register are, owing to their source, practically worthless for statistical purposes, and render their classification less reliable than it otherwise would be. The proportion of Deaths not certified remains comparatively low in the Registration Sub-District of Deritend, but is unusually high in the Registration Sub-Districts of Saint George and Saint Thomas; the last-named Sub-District had the largest percentage of such Deaths in the previous year. In the Saint George's Registration Sub-District only 81·8 per cent. of the Deaths were registered on the certificate of a medical practitioner, so many as 14·0 per cent. of them being certified by the City Coroner after an Inquest had been held.

Particulars respecting the certification of the causes of Death in each Registration Sub-District and in the whole City will be found in the subjoined Table :—

Registration Sub-Districts.	Total Deaths.	Certified by			Proportion per cent. of Deaths.		
		Registered Medical Practitioners.	Coroner.	Not Certified.	Certified by		Not Certified.
					Registered Medical Practitioners.	Coroner.	
City of Birmingham.	7,835	6,920	709	206	88·3	9·1	2·6
Ladywood	942	835	83	24	88·6	8·8	2·6
St. Thomas	641	534	86	21	83·3	13·4	3·3
St. Martin	670	574	80	16	85·7	11·9	2·4
St. George	1,365	1,117	191	57	81·8	14·0	4·2
All Saints	1,457	1,324	92	11	90·9	6·3	2·8
Deritend	1,397	1,290	87	20	92·4	6·2	1·4
Duddeston	1,143	1,036	81	23	90·6	7·4	2·0
Edgbaston	220	210	6	4	95·5	2·7	1·8

DEATHS REGISTERED IN THE CITY OF BIRMINGHAM DURING THE
YEAR ENDING DECEMBER 31ST, 1888.

1888.	AGES.						REGISTRATION SUB-DISTRICTS.								City.
	0-1	1-5	5-20	20-40	40-60	60 and up.	Ladywood.	St. Thomas.	St. Martin.	St. George.	All Saints.	Deritend.	Duddeston.	Edgbaston.	
ALL CAUSES	2105	1292	444	932	1366	1696	942	641	670	1365	1457	1397	1143	220	7835
I.—Specific Febrile, or Zymotic Diseases.															
1.—MIASMATIC DISEASES.															
Smallpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles	39	139	13	..	..	..	26	6	7	33	17	37	65	..	191
Scarlet Fever	2	33	3	2	..	..	5	3	1	3	24	3	1	..	40
Typhus Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whooping Cough	88	143	4	..	..	..	40	17	17	49	29	44	31	8	235
Diphtheria	1	23	15	..	..	1	13	3	2	3	5	7	5	2	40
Simple, Continued, or Ill-defined Fever	1	1	1	1	1	..	..	2	..	1	..	2	..	..	5
Enteric or Typhoid Fever	..	3	22	24	8	2	7	12	3	10	11	6	7	3	59
Other Miasmatic Diseases	1	1	1	..	..	1	1	..	..	1	..	1	1	..	4
2.—DIARRHOEAL DISEASES.															
Simple Cholera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diarrhoea, Dysentery	208	73	2	2	6	14	27	21	32	64	33	60	65	3	305
3.—MALARIAL DISEASES.															
Remittent Fever	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1
Ague	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4.—ZOOGENOUS DISEASES.															
Cowpox and effects of Vaccination	1	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Other Diseases (<i>e.g.</i> , Hydrophobia, Glanders, Splenic Fever)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5.—VENEREAL DISEASES.															
Syphilis	35	2	1	3	3	..	5	5	3	4	14	9	4	..	44
Gonorrhoea, Stricture of Urethra	..	..	..	2	2	2	..	1	..	3	2	..	..	..	6
6.—SEPTIC DISEASES.															
Erysipelas	6	3	1	5	6	4	4	2	1	3	5	6	3	1	25
Pyæmia, Septicæmia	..	1	1	2	1	1	1	1	1	1	1	..	1	..	6
Puerperal Fever	..	..	1	7	..	..	2	..	..	1	2	2	1	..	8
II.—Parasitic Diseases.															
Thrush, and other Vegetable Parasitic Diseases	4	..	..	..	..	..	2	..	1	..	..	..	1	..	4
Worms, Hydatids, and other Animal Parasitic Diseases	..	1	..	1	..	..	..	..	..	1	..	1	..	..	2
III.—Dietic Diseases.															
Want of Breast Milk, Starvation	13	1	..	..	..	..	1	..	1	7	4	..	1	..	14
Scurvy	..	..	1	..	..	..	..	..	..	1	..	..	..	..	1
Chronic Alcoholism	..	..	..	2	6	..	1	..	1	..	..	3	3	..	8
Delirium Tremens	..	..	..	1	2	..	..	..	..	1	1	1	..	..	3
IV.—Constitutional Diseases.															
Rheumatic Fever, Rheumatism of the Heart	..	2	6	13	5	2	6	2	..	6	2	6	6	..	28
Rheumatism	1	1	3	3	5	4	2	1	1	4	7	1	..	1	17
Gout	..	..	..	..	..	8	1	1	2	1	..	1	..	2	8
Rickets	9	16	..	..	1	..	1	1	..	10	1	5	7	1	26
Cancer, Malignant Disease	..	1	1	26	132	99	32	19	25	48	54	41	31	9	259
Tabes Mesenterica	49	17	4	..	..	..	2	5	11	20	7	9	16	..	70
Tubercular Meningitis, Hydrocephalus	21	45	12	2	2	..	24	8	10	12	6	15	5	2	82
Phthisis	6	21	63	324	206	48	71	51	82	90	179	95	80	20	668
Other forms of Tuberculosis, Scrofula	17	10	11	7	4	..	4	2	6	10	8	14	5	..	49

DEATHS REGISTERED IN THE CITY OF BIRMINGHAM DURING THE
YEAR ENDING DECEMBER 31ST, 1888—continued.

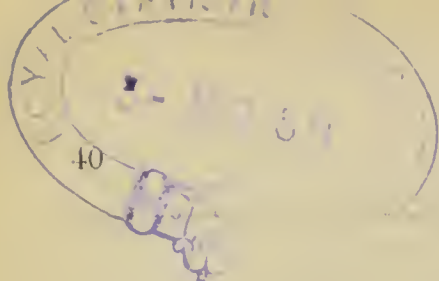
1888.	AGES.						REGISTRATION SUB-DISTRICTS.								City.
	0-1	1-5	5-20	20-40	40-60	60 and up.	Ladywood.	St. Thomas.	St. Martin.	St. George.	All Saints.	Deritend.	Duddeston.	Edgbaston.	
IV.—Constitutional Dis.—continued.															
Purpura, Hemorrhagic Diathesis ..	1	..	2	..	1	1	2	..	..	1	2	..	..	..	5
Anæmia, Chlorosis, Lencocythæmia ..	..	..	2	4	2	3	1	4	2	..	1	..	2	1	11
Glycosuria, Diabetes Mellitus ..	..	..	3	4	7	7	5	5	2	1	1	2	1	4	21
Other Constitutional Diseases ..	..	1	..	1	1	..	..	..	..	1	..	1	1	..	3
V.—Developmental Diseases.															
Premature Birth	195	..	..	..	..	..	30	13	26	23	25	48	24	6	195
Atelectasis	38	..	..	..	..	..	2	2	2	6	6	17	3	..	38
Congenital Malformations.. ..	17	..	..	..	..	..	3	1	2	3	1	5	1	1	17
Old Age.. .. .	..	..	..	..	..	406	39	18	30	72	124	56	47	20	406
VI.—Local Diseases.															
1.—DISEASES OF NERVOUS SYSTEM.															
Inflammation of Brain or Membranes ..	53	68	41	10	16	10	25	15	13	25	39	45	31	5	198
Apoplexy, Softening of Brain, Hemiplegia, Brain Paralysis ..	..	2	3	28	126	169	33	37	19	43	91	51	41	13	328
Insanity, General Paralysis of the Insane ..	..	2	..	2	4	3	..	1	1	2	4	..	1	2	11
Epilepsy	..	..	5	13	13	5	6	6	1	2	10	4	6	1	36
Convulsions	138	42	4	1	1	..	26	14	19	32	21	39	30	5	186
Laryngismus Stridulus (Spasm of Glottis) ..	15	11	2	..	..	..	5	8	3	2	1	5	7	2	28
Disease of Spinal Cord, Paraplegia, Paralysis Agitans ..	..	1	..	2	8	8	5	1	..	..	5	5	1	2	19
Other Diseases of Nervous System ..	9	7	2	2	5	3	2	2	2	4	4	8	5	1	28
2.—DISEASES OF ORGANS OF SPECIAL SENSE.															
(e.g., of Ear, Eye, and Nose).	2	1	2	2	1	1	..	3	..	1	..	4	..	1	9
3.—DISEASES OF CIRCULATORY SYSTEM.															
Pericarditis	..	..	2	2	..	..	1	..	1	2	..	..	..	..	4
Acute Endocarditis	1	..	3	2	2	..	1	1	..	3	2	1	..	..	8
Valvular Diseases of Heart	..	..	9	16	31	30	8	6	5	14	25	22	2	4	86
Other Diseases of Heart	11	4	31	69	164	198	50	34	49	74	102	88	65	15	477
Aneurism	..	..	..	4	15	5	..	5	2	..	11	4	1	1	24
Embolism, Thrombosis	..	..	..	4	2	3	..	2	..	..	1	4	..	2	9
Other Diseases of Blood Vessels ..	..	..	..	..	6	1	1	2	..	..	2	1	..	1	7
4.—DISEASES OF RESPIRATORY SYSTEM															
Laryngitis	5	11	5	2	1	3	3	2	4	3	2	8	4	1	27
Croup	4	46	14	1	..	..	12	3	2	5	6	15	19	3	65
Emphysema, Asthma	..	..	3	8	6	6	5	3	1	1	1	2	3	1	17
Bronchitis	277	204	9	38	169	353	104	71	100	190	187	204	173	21	1050
Pneumonia	106	169	24	75	99	62	56	50	44	112	88	100	71	14	535
Pleurisy	..	6	7	9	7	6	8	6	2	5	7	3	2	2	35
Other Diseases of Respiratory System ..	22	14	1	4	13	15	8	10	7	10	7	20	5	2	69
5.—DISEASES OF DIGESTIVE SYSTEM.															
Dentition	31	30	..	..	..	..	8	4	5	9	10	7	17	1	61
Sore Throat, Quinsy	3	3	1	..	1	..	1	..	2	1	2	2	..	..	8
Diseases of Stomach	30	9	2	10	7	9	13	6	2	18	7	13	8	..	67
Enteritis	37	9	4	2	1	7	9	1	1	9	19	15	5	1	60
Obstructive Diseases of Intestines ..	4	1	5	5	12	13	6	5	5	9	1	7	4	3	40
Peritonitis	8	7	9	17	8	9	11	5	2	10	8	18	4	..	58
Ascites	..	..	..	3	..	..	..	1	..	2	..	..	..	..	3
Cirrhosis of Liver	..	..	..	5	34	12	5	6	4	7	6	10	10	3	51
Jaundice, and other Diseases of Liver ..	13	..	..	5	18	19	9	3	4	5	6	11	9	8	55
Other Diseases of Digestive System ..	8	5	3	2	14	9	1	3	5	17	5	5	5	..	41
6.—DISEASES OF LYMPHATIC SYSTEM															
(e.g., of Lymphatics and Spleen).	1	..	1	..	1	..	..	..	..	1	1	..	1	..	3
7.—DISEASES OF GLAND-LIKE ORGANS OF UNCERTAIN USE															
(e.g., Bronchocele, Addison's Disease).	..	1	1	1	2	..	..	1	1	..	1	1	1	..	5

TABLE A—(continued).

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DEATHS REGISTERED IN THE CITY OF BIRMINGHAM DURING THE
YEAR ENDING DECEMBER 31ST, 1888—continued.

1888.	AGES.						REGISTRATION SUB-DISTRICTS.								City.
	0-1	1-5	5-20	20-40	40-60	60 and up.	Ladywood.	St. Thomas.	St. Martin.	St. George.	All Saints.	Deritend.	Duddeston.	Edgbaston.	
VI.—Local Diseases—continued.															
8.—DISEASES OF URINARY SYSTEM.															
Nephritis	1	5	7	13	11	6	6	3	2	9	7	8	7	1	43
Bright's Disease, Albuminuria	..	..	3	18	37	18	18	4	5	14	20	4	11	..	76
Disease of Bladder or of Prostate	..	1	1	2	6	14	2	..	..	7	6	5	2	2	24
Other Diseases of the Urinary System ..	1	..	2	1	7	1	3	2	2	3	..	..	1	1	12
9.—DISEASES OF REPRODUCTIVE SYSTEM.															
(A) Of Organs of Generation.															
Male Organs	1	..	..	1	..	..	..	..	..	..	1	..	1	..	2
Female Organs	..	1	1	7	1	..	5	..	..	2	2	1	..	..	10
(B) Of Parturition.															
Abortion, Miscarriage	..	..	..	1	..	..	..	..	..	..	1	..	..	..	1
Puerperal Convulsions	..	..	..	1	..	..	..	1	..	..	..	..	..	..	1
Placenta Prævia, Flooding	..	..	..	2	..	..	1	..	..	1	..	..	..	..	2
Other Accidents of Child-birth	..	..	1	33	4	..	2	2	2	8	7	8	8	1	38
10.—DISEASES OF BONES AND JOINTS.															
Caries, Necrosis	1	..	7	4	2	2	2	4	1	4	4	..	1	..	16
Arthritis, Ostitis, Periostitis	..	..	4	1	2	2	1	2	..	3	1	..	1	1	9
Other Diseases of Bones and Joints ..	1	1	3	2	1	..	3	..	..	2	..	..	3	..	8
11.—DISEASES OF INTEGUMENTARY SYSTEM.															
Carbuncle, Phlegmon	1	1	1	..	2	..	2	..	..	..	..	2	1	..	5
Other Diseases of Integumentary System	7	1	1	2	..	5	2	1	1	3	4	3	2	..	16
VII.—Deaths from Violence.															
1.—ACCIDENT OR NEGLIGENCE.															
Fractures and Contusions	..	7	10	17	25	26	8	13	4	33	11	7	8	1	85
Gunshot Wounds	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cut, Stab	..	..	..	..	2	..	..	..	..	2	..	..	..	..	2
Burn, Scald	6	18	7	3	5	2	..	14	1	23	..	2	1	..	41
Poison	..	..	..	3	5	2	..	2	2	2	2	2	..	..	10
Drowning	..	2	10	5	2	1	6	2	..	..	9	3	..	..	20
Suffocation	104	2	..	3	5	2	14	8	16	26	12	20	20	..	116
Otherwise	1	2	4	3	8	2	4	2	1	7	2	1	2	1	20
2.—HOMICIDE.															
Manslaughter	..	..	..	..	..	1	..	..	..	1	..	..	..	..	1
Murder	3	1	..	2	..	..	..	1	..	5	..	..	..	..	6
3.—SUICIDE.															
Gunshot Wounds	..	..	..	..	1	1	..	..	..	1	1	..	..	..	2
Cut, Stab	..	..	..	3	..	2	..	2	1	1	..	1	..	..	5
Poison	..	..	2	1	2	2	1	1	..	4	1	..	..	..	7
Drowning	..	..	..	..	2	2	..	1	1	..	..	1	1	..	4
Hanging	..	..	..	4	5	7	..	..	6	3	1	4	1	1	16
Otherwise	..	..	1	2	1	..	..	2	..	1	..	1	..	..	4
4.—EXECUTION.															
Hanging	..	..	..	2	..	..	..	..	..	..	2	..	..	..	2
VIII.—Deaths from Ill-Defined and not Specified Causes.															
Dropsy	..	..	..	..	4	2	1	2	..	1	1	..	..	1	6
Debility, Atrophy, Inanition	207	3	..	1	2	3	24	21	26	23	21	39	58	4	216
Marasmus	211	44	4	..	..	..	34	23	16	42	28	56	57	3	259
Mortification	2	..	..	..	5	9	..	2	1	3	7	1	1	1	16
Tumour	..	3	6	13	15	6	15	4	1	10	7	2	2	2	43
Abscess	6	4	3	4	2	3	3	3	1	7	4	3	1	..	22
Hæmorrhage	1	..	..	..	..	1	..	..	1	..	1	..	..	..	2
Sudden Death (cause not ascertained) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other not Specified or Ill-defined Causes	20	4	3	6	9	12	3	1	2	2	40	2	3	1	54



METEOROLOGY.

Temperature
of year.

The mean temperature for the year was as low as $46^{\circ}9$, or $1^{\circ}3$ below the average. It was $0^{\circ}2$ colder than 1887, which was, with the exception of 1879, the coldest year since 1867. Cold years are almost always wet. The year 1887 was an exception to this rule, being the driest on record, whilst the year under review is also an exception, as during 1888 the rainfall was considerably less than the average, notwithstanding the low temperature for the year. In 1887 this was accounted for by the fact that the excess of cold occurred chiefly in the winter, whilst the summer was hot and dry; but last year the summer was particularly cold, yet with the exception of July the summer months were not wet. It certainly seems that we have now fairly entered upon a cycle of dry years. During the fifteen years ended 1883 we had a large proportion of very wet years, but since that time, with the exception of 1886, every year has had a rainfall below the mean.

January.

January was about the average in temperature, the mean for the month being $37^{\circ}0$ or $0^{\circ}4$ above the average. It opened with a high temperature, but on the 11th some very severe weather set in, lasting till the 20th; then followed a few warm days, but the end of the month was cold. February and March were both very cold, the former being four degrees and the latter three degrees colder than the average. February is generally $2^{\circ}5$ warmer than January, but this year the usual condition of things was reversed, February being $1^{\circ}9$ colder than the preceding month. The wind was northerly or easterly on no fewer than twenty-one days, whilst in March frosts occurred on no fewer than nineteen occasions.

February.

March.

April.

April was a very cold month, being $4^{\circ}1$ below the average. Of late years April seems almost to have lost its character of a spring month. During the last five or six years this month has on every occasion been considerably colder than the mean, and spring weather seems to have changed its advent to May. April seems to be *par excellence* the month for easterly winds, they being prevalent almost continuously during this month for the last several years. May was fine and warm, having a mean temperature of $52^{\circ}5$, or $0^{\circ}6$ above the average. The first half of the month was cold, but fine warm weather set in on the 17th, and continued to the end of the month. A maximum temperature of $75^{\circ}5$ occurred on the 20th, while several ground-frosts occurred at the beginning of the month.

May.

June.

June was cold and wretched, though some very hot weather occurred on the 26th and 27th, when readings of $81^{\circ}0$ and $81^{\circ}5$ in the shade were registered; but in June, 1887, which was one of the finest and hottest Junes on record, these temperatures were exceeded on four occasions. July was exceedingly cold and wet, hardly any summer weather being experienced; whilst August and September were both cold, the former being wet and the latter dry. October was also a cold

July.

August.
September.
October.

month, being 1°·9 below the average. November was very warm, as much as 5°·5 above the mean—a maximum temperature of 60° occurring on the 17th. December also warm, with a mean temperature of 39°·8, or 1°·9 in excess of the average.

November.

December.

To briefly sum up the months, there were only four which were warm, leaving eight with a temperature below the mean; thus three-fourths of the year was cold, and in this it exactly resembled 1887.

The rainfall of 1888 amounted to 27·63 inches, or 4·30 inches below the mean annual rainfall of Birmingham. March, June, July, August, and November were wetter than usual; whilst January, February, April, May, September, October, and December were dry. January, February, and October were extremely dry, each having a rainfall under an inch; whilst July and November were very wet, the former having a rainfall of 5·58 inches, and the latter 4·95 inches. In July rain fell on no fewer than twenty-five days; whilst in November there were twenty rainy days. There was no day during the year on which the rainfall amounted to an inch.

Rainfall.

The following Table shows the temperature and rainfall for each month during the past year, and also the variations from the monthly averages:—

MONTHS.	TEMPERATURE.			RAINFALL.		
	Mean Tempera- ture in Degrees and Parts.	Average for 20 years, 1861-1880 inclusive	Above or below the average.	Rainfall for Month in Inches and Parts.	Average for 10 years 1867-1876 inclusive.	Above or below the average in Inches and Parts.
January	37°·0	36°·6	+ 0°·4	0·90	2·92	— 2·02
February.....	35·1	39·1	— 4·0	0·91	2·26	— 1·35
March	37·6	40·6	— 3·0	2·96	2·47	+ 0·49
April	43·1	47·2	— 4·1	1·75	2·01	— 0·26
May	52·5	51·9	+ 0·6	1·03	2·27	— 1·24
June	56·0	58·4	— 2·4	2·31	2·28	+ 0·03
July	56·9	61·6	— 4·7	5·58	2·88	+ 2·70
August	58·8	60·5	— 1·7	2·63	2·54	+ 0·09
September	54·1	55·4	— 1·3	1·84	3·67	— 1·83
October	46·3	48·2	— 1·9	0·46	3·33	— 2·87
November	45·8	40·3	+ 5·5	4·95	2·09	+ 2·86
December	39·8	37·9	+ 1·9	2·31	3·21	— 0·90
Year.....	46·9	48·2	— 1·3	27·63	31·93	— 4·30

METEOROLOGY, BIRTHS, DEATHS, AND MORTALITY FROM CERTAIN
PREVALENT DISEASES FOR EACH WEEK OF 1888.

Number.	Week.	Temperature of the Air.			Air Pressure.	Horizontal Movement of Air in Miles.	Mean Humidity, complete Saturation = 100.	Rainfall in inches.	Deaths at			Deaths from																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		Highest during week.	Lowest during week.	Mean Temperature.					Births.	All Ages.	Under 1 year.	1 to 5 years.	Over 60.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Phthisis.	Respiratory Diseases.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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II. SANITATION.

i. *Influences affecting or threatening to affect injuriously the Public Health.*

With the exception of a rather extensive pulling down of property, which was commenced in the closing months of the year in the neighbourhood of Suffolk Street for the extension of the Midland Railway, no important demolition of property has occurred during the year.

Removal of
insanitary
property.

The abolition of the filthy and insanitary nidden privies is being gradually proceeded with, those which are situated under workshops, or very near to dwelling houses, or are in the worst condition receiving first attention; in no fewer than 770 cases the substitute has been the simple form of waste-water flush closet recommended by me and illustrated and described in my Annual Report for 1886. This convenient, cheap and sanitary form of closet is found to answer all the requirements of an out-door privy. In the few instances where complaint has been made of it the cause has been faulty construction.

Ashpit
Middens.

Few prosecutions have been instituted during the past year for offences created by the deposition of filthy matter on the street surfaces; I feel assured that the objectionable and injurious practice is happily less common than formerly.

Surface filth.

The keeping of animals in improper places is a matter distinctly calculated to influence injuriously the public health. I regret to say that, though the practice is less common than it was some years ago, fowls and other animals are still kept in unsuitable places in far too many instances. It is very difficult to make the public realise the danger of what has been so long regarded as a harmless practice.

Improper
keeping of
Animals.

The number of observations made during the year by the three Assistant Inspectors appointed to watch for and report on any excessive emission of dense smoke from the chimneys of manufactories in the City is 3,822. The discharge of black smoke for longer periods than is allowable was observed on 242 occasions; 179 manufacturers were cautioned not to repeat the offence, and 59 were summoned before the magistrates and mulcted in penalties and costs amounting altogether to £54. The purity of the atmosphere is so important a point to strive after that a continued vigilance to prevent the discharge of more smoke into the atmosphere than is absolutely necessary is highly desirable, the more so as it is well recognised that sooty and other particles, besides being prejudicial to the respiratory organs and delicate goods, form a nucleus for the atmospheric watery vapours, thus producing the greater prevalence of fogs in manufacturing towns than in the rural districts.

Smoke.

Alleged
"Sweating" in
Birmingham.

A report having appeared in the *Lancet* upon "sweating" in Birmingham, your Committee passed the following resolution :—

"*Resolved.*—That the attention of the Medical Officer of Health and Inspector of Nuisances be called to the Report of the "*Lancet* Commission" upon Sweating in Birmingham, with a request that they will examine into and report upon the sanitary condition of the houses and yards referred to in such report."

I applied to the Editor of the *Lancet* for the addresses of the Sweating establishments in Birmingham, referred to in their article in the *Lancet*, of the 26th May. I subsequently received a letter from the Commissioner, then at Glasgow, who referred me to Mr. Pugh, Swan Inn, Navigation Street, who is a member of the Tailors' Trade Union, and who accompanied him on his tour of observation. I accordingly wrote to Mr. Pugh, who promised to supply me with a list ; this promise, however, was never fulfilled.

Report on
alleged
"Sweating."

In compliance with a resolution by your Committee, I subsequently made the following report assuming that the houses named were some of those referred to in the *Lancet*.

"I beg to report upon the following 'Sweating' houses which I have visited in company with the Inspector of Nuisances, who furnished me with a list of them.

"*Back 199, Corporation Street.*—This is probably the Corporation property alluded to in the *Lancet* Report, but it is impossible to identify it with certainty, especially as certain structural alterations have recently been made. Eight women and three men are employed in this shop, which is large, well ventilated, and well lighted. The closets have been reconstructed, and there is separate accommodation for the women, so that I find nothing to complain of as to the sanitary arrangements. The amount of cubic space per head is 448 feet.

"*14 Court, Inge Street.*—There is ventilation on one side of the room only ; the windows were open at the time of my visit. The number of people at work is seven, three men and four women.

"Underneath the windows are nine pan closets and a urinal, all of which are filthy and very offensive, while the nuisance from them is said to be perceptible in the workshop.

"It would be a distinct advantage if the closets were converted into water closets. The cubic space of the workshop is equivalent to 299 feet per head.

"45, *Inge Street*.—This is a private house. Four people only are employed, two of whom work in one room upstairs; three out of the four are members of the family. Report on
alleged
"Sweating"
(continued).

"1, *Ellis Street*.—The room is rather small; there were four beside the master at work, two males and two females. There is cross ventilation from one side to the end of the room. The room was rather warm owing to the fire kept for pressing, which they have promised to have in future in the next room. The cubic capacity of the room gives 316 feet per head.

"109, *Suffolk Street*.—There are two nasty privies and an ashpit at the back; they ought to be converted to water closets. On the first floor is a pressing room, in which two men and a boy work. The windows were shut and the air was very close. On the second floor eight women are employed; the windows were open and the air of the room was not at all objectionable. The cubic space is 271 feet per head.

"6, *Great Colmore Street*.—The front attic has windows on only one side; they are so low that when open the tops are not much above the middle of the wall. There should be a ventilator near the ceiling and another in the chimney flue; I suggested this to the tenant. Nine women and two men work in this room. The space per head averages 197 cubic feet. In the back attic only one man and one boy are employed, and the cubic space is ample.

"6, *Cygnets Place, Florence Street*.—Three of the family and a woman are employed in a small room, the air of which was very impure at the time of my visit, as the window was closed and the people seemed very dirty in their habits, and apparently very poor. The family consists of eleven persons, and there are only three bedrooms, inclusive of the one used as a workshop. The space gives 237 cubic feet per head.

"9, *Cygnets Place, Florence Street*.—I found six women and two men in a small room; the window, however, was open, so that the air was not objectionable. The space per head is 178 cubic feet."

ii. *The causes, origin, and distribution of disease.*—

Owing to the non-existence of any of the most important zymotic diseases in an epidemic form, less time has been occupied in investigating the origin, and taking measures to check the spread of disease than in most previous years. The steps ordinarily taken to combat such diseases as Scarlet Fever and Smallpox comprise the prompt removal, wherever consent can be obtained, of the patients from their own homes, Causes, origin,
and distribution
of Disease.

Causes, origin,
and distribution
of Disease
(continued).

where, if left, they act as so many distinct centres of infection, to the City Hospital; the purification of the clothing and bedding used by the patients at the Bacchus Road Disinfecting Station; the fumigation of the rooms considered to be infected, with sulphur; the stripping of the paper from and the lime washing of the walls, and the cleansing of the woodwork and paint with carbolic soap and water. A visit by myself, as well as by the Ward Inspector, and a thorough examination of the premises are made where cases of Typhoid Fever or Diphtheria are said to exist, and every means adopted to remedy structural defects and remove all such influences as may be considered likely to favour the production or cause aggravation of the diseases.

Schools and
Trades, and
infectious
diseases.

The heads of schools and employers of labour are also notified of the attendance at places under their charge of members of households in which infectious disease is or has recently been present, and that such attendance must cease until the medical attendant has certified that danger of infection from the cause has ceased. Where such trades as milk-selling, tailoring, pawnbroking, laundry work, mangling and the like are conducted, it is often found necessary to suspend them until there is reason to feel assured that there is no likelihood of the infection being spread by the business carried on.

Diarrhœa.

The deaths from Diarrhœa generally comprise in the whole of England and Wales about 4·3 per cent. of the mortality from all causes; in Birmingham the Diarrhœal mortality has been on an average of the last ten years 6·6 per cent. of the total mortality. This heavy fatality and its regular occurrence each autumn have naturally for a long time excited the attention of all interested in sanitary science and vital statistics, the more so because, although it has been clear that the disease depended primarily for its creation on a high temperature, yet the much larger mortality in some places than in others made it equally evident that there are exciting or other causes about which there has been much speculation and without which a high temperature has little or no effect.

Enquiry by
Dr. Ballard.

With the object of discovering what conditions besides a high temperature are necessary to produce summer Diarrhœa, the Local Government Board entrusted to one of its Medical Inspectors, Dr. Ballard, the duty of investigating the matter. For this purpose the co-operation of a number of Medical Officers of Health and other Authorities in various parts of the country was obtained. Birmingham was selected as one of the towns which it was considered desirable should furnish particulars of meteorology, and of sickness and mortality from Diarrhœa. The work done at Dr. Ballard's request in this Department comprised, not to mention minor details, enquiries for two

years into the conditions—social and sanitary—surrounding every fatal case of the disease in the city, and a detailed account of the information procured, as well as tabulated records, giving age and locality, for each year between 1880 and 1885, of each death registered from Diarrhœa, and of all deaths of children under five years of age, giving the nature of the disease, age, and locality. The number of deaths in infants under one year, and in children between one and five years of age in each Registration Sub-District and public Institution in the town during the same period of time was also obtained and supplied. Meteorological observations, comprising air temperature at 9 a.m., and the readings of the maximum, minimum, mean, one-foot and four-feet earth thermometers, appearance of the sky at the time of observation and during the previous twenty-four hours, direction and force of wind, were also made daily at four stations in the city; the records for one of these stations were kindly supplied me by the late Mr. David Smith, and after his father's death by his son, Mr. Freeman Smith; the readings of the various instruments at my own house were taken by myself and my son, Mr. H. Grosvenor Hill; and those at the two other stations by my clerks. Mr. Smith and myself also observed the amount of rainfall on each day when rain was measured.

Enquiry by
Dr. Ballard
(continued).

Dr. Ballard has recently made his report to the Local Government Board; he instituted his inquiry at the end of 1880, principally on account of the high Diarrhœal Death-rate in Leicester and certain other large towns. The results of the eight years inquiry Dr. Ballard wishes to be looked upon as only provisional and liable to modification after a closer analysis of facts, but the following, which I re-produce here from the report in a condensed form, are given as a selection of the more important of the conditions which are commonly regarded as influencing Diarrhœal mortality.

A. General conditions.

(1.) *Atmospheric temperature.* A high temperature conduces to a high Diarrhœal mortality, but its influence is exerted indirectly. (2.) *Temperature of the earth.* It seems that the summer rise of Diarrhœal mortality does not begin until the temperature recorded by the four-feet earth thermometer has attained to about 56° F, that the maximum Diarrhœal mortality and the highest temperature of the four-feet earth thermometer are usually coincident, as are also the decline of the temperature of the earth four feet from the ground and that of the Diarrhœal Death-rate. (3.) *Rainfall* exerts an influence on Diarrhœa, but it is an indirect one, viz., by preventing the rise and hastening the fall of the temperature of the earth. (4.) *Air movement.* Other things being equal, movement of the atmosphere tends to lessen Diarrhœal mortality.

Abstract of
Dr. Ballard's
report.

B. Conditions of Locality.

Abstract of
Dr. Ballard's
report
(continued).

(5.) *Elevation above sea level* appears to have no powerful effect, and to influence Diarrhœal mortality only in so far as it affects infant mortality from all causes together. (6.) *Soil*. Of all natural soils sand is the most diarrhœal, while as regards gravel the more it approaches to sand in its fineness or to rock in its coarseness, its relation to Diarrhœa appears to be greater or to be less. Clay soils do not appear specially favourable to high Diarrhœal mortality. The presence of much organic matter in a soil renders it distinctly more favourable to high Diarrhœal mortality than it otherwise would be, hence Diarrhœal mortality is apt to be high where dwellings are erected on made ground, the refuse of towns and the like, or where the earth beneath and about dwellings is polluted by soakage into it of filth from ashpits, leaky drains or the surface of the ground. Excessive wetness and complete dryness of soil appear to be both unfavourable to Diarrhœa. (7.) *Density of population*. Aggregation favours Diarrhœal mortality. (8.) *Density of buildings*. Crowding of building of whatever sort promotes a high Diarrhœal death-rate. (9.) *Restriction of and impediments to the free circulation of air* favour Diarrhœal mortality, whether the restriction be outside or inside the dwelling. The dwellings in which the free passage of air through them is most effectually prevented are those which are built "back to back." Dr. Ballard concludes "that the absence of free domestic ventilation increases very greatly and very obviously the mortality from Diarrhœa, and this very much more than it increases the mortality from all causes put together, more indeed than it does the mortality from the seven principal zymotics put together, and very much more than it affects the mortality from all causes, except these seven zymotics." (10.) *Domestic darkness and general dirtiness of dwellings* are conducive to Diarrhœal mortality, but they are so associated with other conditions likely to produce the same result that it is difficult to say to what extent, while (11.) *sewer or cesspool emanations* may occasion attacks of fatal Diarrhœa. (12.) *Atmospheric pollution from coal smoke, or from the gaseous emanations from chemical works* appear to be inoperative, except in so far as such atmospheric fouling may lower the general standard of infant health. (13.) *Filthy accumulations of domestic refuse in privies, ashpits, dustbins, etc.* Such accumulations promote Diarrhœal mortality, but especially where free movement of air is impeded and the atmospheric fouling due to them is consequently concentrated. (14.) *Undefined polluted conditions of drinking water* appear to have little or nothing to do in the way of direct causation with the Diarrhœal mortality that occurs annually in this country in the summer.

C. Conditions relating to the population.

(15.) *Social position*. The indications are that this condition influences the mortality from all other causes even to a greater extent than it does Diarrhœal mortality alone; Diarrhœal mortality is, however, comparatively very great among the lower classes. (16.) *Food*. Infants fed solely from the breast appear to be remarkably exempt from fatal Diarrhœa, while infants fed on artificial food entirely suffer most heavily from fatal Diarrhœa. Children fed partially at the breast and partially with other kinds of food suffer much less than those who have no breast milk. The use of the "bottle" is decidedly more dangerous than artificial feeding without its use. The keeping of food in pantries exposed to emanations from accumulations of domestic filth tends to render it liable to occasion Diarrhœa, particularly where the place of storage is not exposed to currents of air. (17.) *Maternal neglect and carelessness in infant management*. Collective experience shows that the infants most likely to be neglected, namely, those which are illegitimate, suffer exceptionally from all causes of infant mortality, but from Diarrhœal mortality rather more than from other causes of death. (18.) *Occupation of females from home*. This resolves itself mainly into the question of maternal neglect, with the substitution more or less of artificial feeding for feeding at the breast.

Abstract of
Dr. Ballard's
Report
(continued).

Dr. Ballard concludes in the following terms :—

"Having regard to the broad facts already indicated, and to others which have yet to be exhibited by me, a working hypothesis, or provisional explanation that would best accord with the totality of the evidence in my possession, bearing on the production of epidemic Diarrhœa, may be stated as follows :—

Dr. Ballard's
provisional
hypothesis.

"That the essential cause of Diarrhœa resides ordinarily in the superficial layers of the earth, where it is intimately associated with the life processes of some micro-organism not yet detected, captured, or isolated.

"That the vital manifestations of such organism are dependent among other things, perhaps principally upon conditions of season, and on the presence of dead organic matter which is its pabulum.

"That, on occasion, such micro-organism is capable of getting abroad, from its primary habitat the earth, and having become air-borne, obtains opportunity for fastening on non-living organic material, and of using such organic material both as nidus and as pabulum in undergoing various phases of its life history.

"That in food, inside as well as outside of the human body, such micro-organism finds, especially at certain seasons, nidus and pabulum convenient for its development, multiplication, or evolution.

Dr. Ballard's
provisional
hypothesis
(continued).

“That from food, as also from the contained organic matter of particular soils, such micro-organism can manufacture by the chemical changes wrought therein through certain of its life processes, a substance which is a virulent chemical poison ; and that this chemical substance is, in the human body, the material cause of epidemic Diarrhœa.

“It will be observed that this provisional hypothesis is sufficiently elastic to include as a common cause of Diarrhœa chemical products of bacterial life, manufactured indifferently within or outside of the human body. Elasticity to this extent of a provisional hypothesis has been necessary for the reason that in the present state of our knowledge certain cases, and groups of cases of Diarrhœa not distinguishable from epidemic summer Diarrhœa, have now and again been found to possess the faculty of being directly communicable from person to person.

“It will be obvious that in the stools of such infective cases of Diarrhœa the hypothetical organism causative of the malady may be looked for with good hope of success.

PROVISIONAL PRACTICAL SUGGESTIONS TO SANITARY AUTHORITIES.

Dr. Ballard's
provisional
suggestions.

“These are based upon the foregoing results of the inquiry as to causation, in so far as the ‘causes’ above enumerated are such as a local authority has statutory power to deal with and to modify, or such as it may endeavour to get modified by appropriate advice.

“1. The first object which a local authority desirous of lessening its Diarrhœal mortality should have in view is to prevent the fouling of the soil with matters out of which the material of Diarrhœa can be produced. This object is to be obtained by providing, *a*, for the constant removal of liquid filth and sewage by means of proper conduits (drains and sewers), proper in the sense that that they shall even to their very inlets, be constructed or imbedded in such a manner that there can be no passage of the liquid material they are intended to convey away, outwards into the soil ; *b*, for the daily removal of all filth (useless organic matters) of a nature not conveyable by drains, &c. No prolonged storage of such matter in ashpits, dustbins, dungpits, about pigsties, &c., should be allowed.

“2. The cleanliness of the interior of domestic premises should be sedulously looked to and maintained, for filth (organic matter which can be infected by the contagium) often lodges here as well as in storage receptacles purposely provided for it.

“3. The dryness and cleanliness of the soil in towns (and especially in the poorer parts of towns), should be further provided for by procuring the effectual sealing of the surface of the ground immediately about dwellings by means of uniform *impermeable* material (such as cement), from the surface of which all water that falls may, *with certainty*, be carried off into the sewers, and which shall further prevent free passage of air from and into the soil. The same applies to the surface of such places as cowsheds, stables, pigsties, &c.

Dr. Ballard's
provisional
suggestions
(continued).

“4. In places where the ground water rises at any time to within such a distance of the surface as to render the first few feet of the soil habitually damp by capillary attraction from it, the most strenuous endeavours should be made by the authority to *lower it permanently* to such a point as shall prevent this *dampness* of the soil, and so ensure that the first few feet of earth shall be dry.

“5. In places where the soil is already polluted by or contains organic matter (as is the case with all soils which are not absolutely hard and rocky), the whole surface of the earth beneath houses should be so effectually and uniformly sealed with impervious material, such as concrete, as to prevent any chance of emanations rising into them from the soil. This should be done even in the case of new houses, not only as a precaution against the rise of ground air which may by chance become infected hereafter, but because the earth of fields and of land which has been cultivated (*e.g.*, of the former sites of market gardens) is more or less loaded with organic *débris*. Hence also a common practice of not only leaving unremoved the sods of the interior of buildings in process of erection, but of adding to them the sods from the footings of the walls, should be prohibited.

“6. Free atmospheric dilution of polluted air, to be brought about only by free movement of air among and within dwellings—which is what the term ‘free ventilation’ means—is an effectual means of lessening the energy of a present contagium. Of this I am perfectly certain. There can be no question whatever that to attain this end, and to attain it with the greatest completeness, should be one grand object of a sanitary authority wishing to lessen its Diarrhoeal death-rate. For attaining it in older parts of a town Parliament has given ample powers, under such Acts as the Artisans and Labourers Dwellings Acts, so far as the free ventilation about dwellings is concerned. For new dwellings it is in the power of the authority to prescribe the width of streets, the provision of free space about dwellings, and to regulate the laying out of new streets. So far as is practicable the line of new streets should be such as will permit the free traversing of them by the prevailing wind in the summer season of the year. In any case free movement of air should be secured at the back as well as in

Dr. Ballard's
provisional
suggestions
(continued)

the front of every house ; and in addition the line of houses in a street should be broken at frequent intervals by a cross street or open space, to permit also of the transverse passage of the wind. Domestic ventilation is provided for by the Public Health and Nuisances Removal Acts, which local sanitary authorities are not only empowered, but which it has now been made their duty to enforce. The erection of ' back-to-back ' houses should not be permitted.

" 7. I am not prepared to name any kind of food which may not become infected with the contagium of this malady. Care should be taken to protect food of all kinds from this infection, but special care should be taken for the protection of milk, the staple article of food of artificially fed infants. Milk may become infected at any time, from that of its leaving the cow's udder to the time of its being used as food. Hence the necessity of guarding it from infection in the cow shed, in the storing place of the dairyman, in the house of the retailer, and in the dwelling of the consumer. Over every one of these places a local sanitary authority now has control. This control should be exercised by taking care that the cow-sheds themselves are paved with uniform and impermeable material and kept constantly clean and airy, and that all manure and filth is removed daily from their neighbourhood ; the most perfect models of such places being adopted as pattern. The conventional cleanliness is insufficient. Next, the dairy should be similarly protected from the rise of ground air, and very freely ventilated indeed. No milk retailer should be registered who has not a proper place outside his dwelling in which to keep his milk, a place similarly perfectly clean, protected against ground air, and very freely ventilated. The practice often adopted in Leicester and some other towns of storing milk on the ground floor of a dwelling house or in some underground cellar, should be altogether discouraged. Lastly, there is a rule, not only applicable to the keeping of milk, but of food of all kinds, that the pantries of houses should be properly constructed ; certainly they should not be underground cellars or cellar ' stair-heads,' as is commonly the case in Leicester, but be open to free ventilation, light, cool and dry, and protected against the rise of ground air. Local authorities cannot enforce this recommendation, but they may take measures to make the importance of the provision known generally through their district.

" As to the offering for sale of stale and over-ripe fruit or doubtfully wholesome meat, and as to the sanitary condition of bakehouses and other places where food is prepared and sold, the local authority has ample powers of control, and these powers they should exercise. They may usefully recommend that consumers should boil all milk on its receipt into their houses.

“8. It may be observed that, except in one respect, I have made no reference to sewers or drains, and to sewer and drain emanations, as conveyors of diarrhœa contagium. This is not because I am not perfectly aware that foul emanations from such conduits may occasion diarrhœal disease. Indeed, I have, I think, solid grounds for believing that outbreaks of diarrhœa are sometimes thus occasioned, as well as by foul emanations from cesspools and other receptacles of decomposing organic filth. But the public mind is, I believe, fully aware of this danger, and nothing that I can say is likely to enhance the appreciation of it. Nor need I add that the abolition of improper receptacles of filth and the free flushing and ventilation of drains and sewers, with due provision against the entry of foul air from them into dwellings and work places, is a matter which a sanitary authority is bound to see to. I have preferred to dwell most upon such points of precaution as are less likely to receive attention.

Dr. Ballard's
provisional
suggestions
(continued).

“9. And lastly, I have to say that whatever may be the essential cause of the malady, everything that promotes general ill health in a population probably renders it more liable to attack, and certainly inclines the illness towards a fatal issue.

“To carry out the advice given will no doubt be a most costly proceeding. With that I have nothing to do. Sanitary faults are and ever must be costly—costly in human life or costly in pecuniary expenditure.”

iii. *Advice to the Sanitary Authority on matters affecting injuriously the Public Health.*—

Advice to the
Sanitary
Authority.

On the 15th May disinterment of the bodies in the Steelhouse Lane Burial Ground in front of the Chapel was effected. I was present during a part of the time and had previously advised measures for the obviation of nuisance or injury to health. The complete removal of the remains was effected without either the one or the other, and they were conveyed to Witton Cemetery, and there re-interred.

Removal of
bodies from
Steelhouse Lane
Burial Ground.

The question of the disposal of the Dead has for a considerable number of years received attention both by local bodies and the central authority, and very much has been done to mitigate the evils connected with it. Intramural interment is not however yet quite abolished, and extramural interment will in course of time not very long, demand the attention of sanitary authorities owing to the rapid growth of large towns.

Disposal of the
Dead.

This fact is becoming very generally recognised, and in order to obviate in the future those dangers to which towns were formerly so injuriously exposed, various improvements have been recently suggested and discussed.

Disposal of the
Dead
(continued).

The "Church of England Burial and Funeral Reform Association" have been for some time actively engaged in advocating by writings, lectures, and meetings, one of which last was held in Birmingham in October, the burial of the dead in such a way that the body becomes at once exposed to the action of earth and air and so is the more speedily resolved into its elements. This is no doubt an improvement on sealing up bodies in metal coffins and brick vaults, but it is only a slight mitigation and not a remedy for the evils complained of. Many high authorities consider that the process of resolution should be hastened still more, as much as possible in fact, and in such a way that all danger to the public health is avoided. Instead of allowing the process to go on for several years at least they would take means to secure its accomplishment in an hour; to do this they recommend the process known as Cremation. From a chemical point of view it differs from ordinary decay almost entirely in the time occupied. The ultimate results are the same. From a sanitary point of view its advantages are doubtless very great. The poisoning of the air and the water supplies in the neighbourhood of graveyards is too well known to need dwelling on, but there are other dangers of a less conspicuous kind which have recently attracted the attention of the medical profession. Dr. Darwin pointed out that earth worms descend to considerable depths into the soil and feed there, and coming to the surface they disgorge what they have eaten below. Pasteur, following up this observation and reducing it to experiment, found that worms did actually bring up the infective material from a carcase buried seven feet deep, and that they were thus the means of spreading infection.

Cremation and
its advantages.

Sir Henry Thompson says: "The poisons of Scarlet Fever, Typhoid, Smallpox, Diphtheria, Malignant Cholera, are undoubtedly transmissible through earth from the buried body by more than one mode, and thus by the act of interment we literally sow broadcast through the land innumerable seeds of pestilence, germs which retain their vitality, many of them destined at some future time to fructify in premature death and ruined health for thousands. It is vain," he says, "to dream of wiping out the reproach to our civilization which the presence and power of these diseases in our midst assuredly constitute by any precaution or treatment while effective machinery for their reproduction is in constant daily action." I fully endorse these views and strongly feel the responsibility of continuing a system after its dangers have been pointed out and a remedy for them indicated. The disappearance of the early and mediæval epidemic diseases, and the comparatively modern Ague, Scurvy and Typhus, proves clearly that they owed their existence to insanitary and removable conditions, but we are still plagued with diseases which though less terrible in aspect are perhaps not less fatal in the aggregate.

I mean Scarlet Fever, Diphtheria, Typhoid, Diarrhœa, etc. It is strictly logical to draw the inference that these also result from insanitary and removable conditions, that the present mode of interment is one of these and a very important one, and that with advancing knowledge and social improvement the diseases of our day will also become matters of history.

Cremation and
its advantages
(continued).

Cremation has for several years been carried on at Woking Cemetery, where some scores of bodies have been disposed of, and in Glasgow and Leicester steps are being taken for the establishment of *Crematoria* like that at Woking, where up to the present time cremations have taken place. It only needs the adoption of the practice in a few leading towns to familiarise and inform the public mind, and remove that false sentiment and prejudice which are generally so great an obstacle to salutary reforms.

My attention having been drawn by the Chairman to some premises in the Crescent, I made an inspection of them with Mr. Parker, Inspector of Nuisances, and submitted a report to your Committee.

Defective
drainage under
houses.

The houses belonged to several different owners and they drained into an old sewer which was once at the rear of the buildings, but was then, owing to their backward extension, situated under the kitchen or scullery floors. It was an old barrel drain, fifteen inches in diameter, and in a bad state of repair; on opening the portion running under the kitchen of one of the houses it was found to be from half to three-parts full of offensive deposit.

One of the owners I was informed strongly objected to any interference with the drain. He further alleged that he had disconnected his drains from the old barrel drain and connected them with the drain in the passage quite at the back of his premises, but on testing the drains we found this not to be the case. It is highly undesirable to have a drain, however well constructed, beneath the basement of a building, but this was old, large, and ill constructed, and there was no necessity for retaining it. I therefore recommended that the barrel drain be abolished, and the houses be drained into a drain existing in the passage at the back of the property.

I smelt the testing-gas in the Kitchens of two of the houses; the Inspectors said they smelt it in another also. It was alleged that the real cause of the nuisance was a cellar underneath a stable, which contained a quantity of liquid filth. The stable was separated, however, a considerable distance from the houses, and could therefore have no injurious effect on the occupants.

After much opposition on the part of one of the owners, and considerable trouble and delay, the efficient drainage of all the properties was effected.

In March last I made the following report to your Committee.

Report upon
Children's
Hospital.

"In consequence of a request from the Chairman I visited and inspected the drainage of the Children's Hospital on the 20th inst., it being stated that there had been an outbreak of Diphtheria there. I met Mr. Lloyd, the Honorary Secretary, Dr. Welch, and the Resident Officer. They informed me there had been no outbreak there but that such cases as had occurred had been sent in as patients. I, however, examined the drainage while there and found two conditions which certainly require attention.

"There is a covered but untrapped opening into the main drain, which when opened emitted steam and vapour possessing an odour of sewage.

"At the extreme end of the system, just before the syphon trap which shuts off the drain from the sewer in the street, several feet of uncovered drain at the bottom of a manhole presented a semi-stagnant mass of newspaper, fœcal matter and other filth to a depth of several inches. This is due to the fact that the fall in the drain here is insufficient to establish current enough in the sewage to carry certain solid matter through the syphon. On having water thrown down the current of sewage here was seen to be sluggish and without sufficient force.

"I recommended trapping of the first opening and periodical flushing with a considerable head of water to thoroughly clear the flat portion of the drain, after the removal of the material then causing the obstruction."

Outbreaks of
disease.

iv. *Outbreaks of Infectious, Contagious, or Epidemic Diseases.*—There cannot be said to have been any outbreak of infectious disease during the year. Such diseases as Scarlet Fever, Measles, and Whooping Cough always exist in the City to a greater or less extent.

Unwholesome
food.

v. *Examination of, and action in regard to Suspected, Diseased, or Unwholesome Food.*—More than 35 tons of meat have been destroyed during the past year; this weight comprises 460 lots of meat, 444 of which were voluntarily surrendered by the owners, while the other 16 were seized by the Inspectors. So many as 190 lots of fish have also been condemned; 69 of these were seized, and 121 were given up by the vendors of their own accord.

New Bye-Laws.

vi. *Duties under Sanitary Bye-Laws and Regulations.*—These refer to Common Lodging Houses, Houses let in Lodgings, Slaughterhouses, Dairies, Cow Sheds, and Milk Shops. Additional Bye-Laws have been made during the year by the City Council and confirmed by the Local Government Board with respect to Common Lodging Houses,

and for the prevention of nuisances arising from snow, filth, dust, ashes, and rubbish, or from the keeping of animals so as to be injurious to health.

COMMON LODGING HOUSES.

The number of these has been decreasing of late years ; Common lodging houses there were at the end of the year 97 on the register, against 100 at the close of the previous year. These 97 houses are registered to accommodate 2,270 Lodgers. Very nearly 3,000 visits have been paid by night, and more than 11,000 by day ; both the day and night visits are made principally by the Ward Inspectors.

The new Bye-Laws with a special regard to decency and New Bye-Laws. morality provide that each male lodger shall have a separate bed, and that the rooms occupied by married couples shall be divided off by means of substantial partitions carried to the ceiling, making each apartment virtually a separate room.

HOUSES LET IN LODGINGS.

Fewer also of these are registered than some years ago, Houses let in lodgings. as they now number only 137, against 163 two years ago, and 211 in 1882 and 1883, when the maximum figure was reached. Nearly 800 Lodgers are permitted, giving an average of 5·8 to each house.

SLAUGHTERHOUSES.

The number of these has undergone no reduction during Slaughter-houses. the year ; there are still 266 altogether, 140 of which are registered and 126 licensed.

Application having been made for permission to erect a Slaughterhouse in Rupert Street I inspected the premises and reported to the Smithfield Market Sub-Committee that the site is totally unsuited for the purpose.

The inadequacy of the present Slaughterhouse accommodation at Smithfield, and the pressing need of an abattoir continue Abattoir. to increase. It is sincerely to be hoped that a matter so important both to the material interests of the butchers and the requirements of the Public Health, and which unlike many undertakings may be made a source of profit to the community, will not much longer be delayed.

DAIRIES, COW SHEDS, AND MILK SHOPS.

The Assistant Inspector deputed to look after the Dairies, Dairies and Milk Shops. Milk Shops, and Bakehouses, reports to me that during the year he paid 2,975 visits to the Dairies and Milk Shops ; in 81 instances he found them in a dirty condition and ordered them to be cleansed. He also gave directions for 110 cellars and 48 pantries of Milk Shops to be lime-washed, and for better ventilation to be provided to 41 of them, while in 264 instances he directed that the sale of articles unsuitable for storing with milk should be discontinued. In three cases the Assistant

Dairies and
Milk Shops.
(continued).

Inspector found the milk vessels and measures in a dirty state. Cases of Infectious disease at Milk Shops were notified to this department in nine instances ; of these five were cases of Scarlet Fever, two of Diphtheria, one of Smallpox, and one of Measles. Four of the cases of Scarlet Fever and the single case of Smallpox were removed to the City Hospital. The whole of the milk stored in the shops when these cases occurred was destroyed, and sale of dairy produce was prohibited till the premises had been disinfected, and were considered to be free from the germs of contagious disease. I am not aware that any extension of these diseases occurred through the sale of the milk.

Two hundred and forty-five applications were made during the year for registration of Milk Shops ; 122 of them were granted, 123 being refused on account of the construction of the premises being unsuitable, or because it was proposed to sell articles likely to contaminate the milk. Most of the refusals, however, were based on the ground that the living apartments were in direct communication with the shop. One hundred and seventy-eight persons have given up the sale of milk during the year, so that the number of shops on the register has been reduced during the year by 56, and now stands at 1,640.

Cow Sheds.

The Cow Sheds are now under the supervision of this Department ; at the close of the year there were 75 in use.

Pleuro-
pneumonia in
cattle.

There were three outbreaks reported of Pleuro-Pneumonia amongst cattle, two in Bordesley Ward, and the other in Rotton Park Ward. Precautions to prevent the spread of the infection were enforced by Mr. Birkley, the Inspector under the Contagious Diseases (Animals) Act, and appear to have been successful.

Having been requested by your Committee to examine the Cow Sheds and submit to you the results of my inspection I did so, and in November last made the following report :—

Report on Cow
Sheds.

“ In reference to Minute No. 2,117 I beg to report that I have in company of the Inspector of Nuisances visited and inspected the Cow Houses of the Borough.

“ These Cow Houses, 83 in number, were found in widely different localities ; in only 67 instances were cows found to be kept, as in seven cases the proprietors had ceased keeping cows ; in four instances there were none kept at the time of my visit, while in five cases all the cows were then out at grass.

“ Eleven Cow Sheds had no register plate affixed to them, while six sheds were found to be altogether unregistered,

registration, it is said, having been declined by the Inspectors of the Markets and Fairs Committee in several instances, owing to the contemplated transference of the Cow Sheds' inspection from that Committee to the Health Committee.

Report on Cow-sheds
(continued).

“The space allowed per cow averages 515 cubic feet.

“In sixteen cases the Cow House adjoined a dwelling house; the average distance of the remainder from the nearest dwelling house is 40 feet, ranging from 3 feet to 150 feet.

“The fodder, or a portion of it, was kept in the Cow House in 37 instances.

“In five instances there was both tap and pump-water on the premises, in thirteen only pump water, while in two cases the water was obtained from a spring; in all other cases the Corporation water was the sole supply.

“Thirty-four Cow Houses were found with drain traps inside them.

“Animals, other than cows, were kept in the Cow Shed in three or four cases.

“In only three instances was there any direct access to the heads of the cows.

“The yard was wholly unpaved in twenty-seven instances, and in nineteen other only partially paved.

“With few exceptions the manure pits are too large, and consequently are not emptied sufficiently often; in eighteen instances the manure pit adjoined the Cow Shed, while in thirty instances no manure pit was provided, in twenty-one of these it was simply deposited in the yard.

“Some of the Cow Sheds were situated too near dwellings, in premises too confined and not furnished with proper entrances; in several instances the only approach was the narrow common entry.

“It is very desirable that proper arrangements should be insisted on for ensuring adequate lighting, ventilation, cleansing, drainage, and water supply, and in order to assist you in the framing of regulations I submit the following recommendations.

“The occupier of a Cow Shed shall provide windows or openings in its walls, doors, or roof, so placed as to ensure its being well lighted in every part of its interior. He shall cause the aggregate area of such windows or openings to be not less than one-twentieth of the floor area of such Cow Shed.

“The occupier of a Cow Shed shall provide in its external walls, doors or roof, permanent openings, so placed and kept as to ensure an effectual change of air therein, and having an aggregate area for inlet of not less than fifty-four square inches for each animal actually in such shed, and the same for outlet,

Report on Cow
Sheds
(continued).

such openings being protected so as to prevent injurious draughts. Every person occupying a Cow Shed shall allow a width of not less than seven feet for every double stall, and a width of not less than four feet for every single stall. He shall also allow not less than 800 cubic feet of air space for each animal housed therein. In calculating this air space any height above twelve feet shall not be reckoned.

“The number of cows which each shed is capable of accommodating, and for which it is registered, shall be legibly painted on the door or lintel.

“The occupier of a Cow Shed shall at all times keep it in a properly clean condition and free from any accumulation of offensive matter. He shall cause its floors and mangers to be thoroughly cleansed at least once in each day it is occupied. He shall cause the inner surface of its walls, doors, and ceiling, or roof to be limewashed at least twice in each year, namely, in the months of February and August, and at such other times as the Local Authority may require by notice given in writing under the hand of their clerk. Provided that, when the structure of any part of the internal surface of a Cow Shed is of a nature to render limewashing inexpedient, the Local Authority may prescribe, in place thereof, other suitable means of cleansing the whole or a part of such internal surface.

“The occupier of a Cow Shed shall cause a grain pit, or other fixed receptacle, used for containing grains or other fodder, to be cleansed sufficiently often to prevent it from being in a foul condition.

“The occupier of a Cow Shed shall provide it with such proper means of drainage as will effectually carry away from it all urine and liquid filth, and he shall cause such liquid drainage to be discharged outside it in such a manner that no emanations from any drain, sewer or cesspool can gain entrance to it. Every Cow Shed shall be properly paved with hard, impervious material, such flooring having a fall to a channel which shall discharge itself over a trapped gully on the outside of the Cow Shed.

“The occupier of a Cow Shed shall provide it with a sufficient supply of pure and wholesome water. The occupier shall not permit soakage from a privy, drain, sewer, cesspool, pigsty, or accumulation of manure or other foul matter to percolate into a well or other source of water supplying such Cow Shed.

“The occupier of a Cow Shed shall not permit a water cistern supplying such Cow Shed to be situated within a building in which any animal is kept, or in any place or situation where it would be liable to be exposed to any foul or

injurious emanations. He shall cause such cistern to be properly covered and to be cleansed as often as may be necessary, to keep it in a clean condition and free from any deposit. He shall not allow a pipe from such cistern to communicate with a water closet, soil pipe, drain, sewer, cess-pool, or privy. He shall cause any overflow pipe from it to discharge into the open air.

Report on Cow
Sheds
(continued).

“The occupier of a Cow Shed shall cause a water trough in such Cow Shed to be cleansed as often as may be necessary to keep it in a clean condition and free from any deposit.

“The occupier of a Cow Shed shall not use it for any purpose by which the cleanliness or sanitary condition thereof might be affected.

“Access to the heads of the animals by a passage running the whole length of the stalls should be recommended.

“The occupier of a Cow Shed shall permit the Medical Officer of Health or the Inspector of Nuisances of the Local Authority to take and carry away some of the water supplied to such Cow Shed, for the purpose of examination or analysis, whenever he may deem it necessary so to do.

“The occupier of a Cow Shed shall not make, or permit to be made, an alteration in the lighting, ventilation, drainage or water supply of such Cow Shed without forthwith giving notice thereof in writing to the Clerk of the Local Authority. Provided that such notice shall not be required for the execution of necessary repairs.”

CANAL BOATS ACTS, 1877 AND 1884.

At the end of the year there were 417 boats on the register of your Authority ; 52 boats have been registered during the year, while the registers of 24 have been cancelled. Eight hundred and sixty-seven inspections of the canal boats plying through the City have been made during the period under review by the Assistant Inspector appointed to carry out these Acts, who also officiates on behalf of the School Board to see that the provisions of the Education Acts are observed. A considerable number of structural improvements have been made in the boats, while very few of the notices issued for such alterations have remained unattended to. The cleanly condition of the cabins noticed during the previous year has again been observed, only one dirty cabin having been reported. The number of cases where females over 12 were found occupying the same cabins as males is still too large, 28 such cases having been reported during the year. Overcrowding has been remedied in 18 instances. Forecabins have been provided to nine boats, and partitions for the separation of the sexes to two. Inspections are occasionally made at night

Canal Boats
Acts.

Canal Boats
Acts

(continued).

in order to see that the regulations as to the number and sex of the persons allowed to sleep in the boats are complied with. No case of infectious disease has been reported among the boat people, while in no instance has the officer appointed to inspect the boats been obstructed in the execution of his duty; on 21 occasions, however, the Master was unable to produce his certificate, having neglected to carry it with him.

Legal proceedings have been found necessary in seven instances; in four cases for not registering boats, in one for permitting overcrowding, in one for allowing a girl over 12 years of age to sleep in the same cabin as men, and in one other for non-production of certificate.

BAKEHOUSES.

Bakehouses.

The number of these structures on the register is 504, against 501 in 1887, one having been removed and four new ones erected. The Bakehouse Inspector has made 914 visits during the year. In 118 instances the bakehouses were found to be dirty and the owners were called upon to whitewash them. In 41 instances notices were served to cleanse floors and troughs, in two others offensive washtubs were found and ordered to be removed. Animals were found in six of the bakehouses, in one case fowls, in another pigeons, in two others dogs, in one rabbits, and in the last a horse. All these were of course removed. Defective ventilation was remedied in one instance. In two Bakehouses drain traps existed on the floors. Eighteen youths under 18 years of age were found to be employed; as the employment of youths is a matter regulated by Her Majesty's Inspectors of Factories, I notified the cases to them. The regular inspection of these Bakehouses has been productive of much improvement in their condition. In no case this year was the bakehouse found to be in connection with a bedroom or a closet, or to be used as a dwelling-room or for drying clothes, nor is there at the present time a single bakehouse situated underground, and it is strongly insisted on that a copy of the Regulations shall be placed in a prominent place on the walls of each bakehouse.

A plan for a proposed bakehouse at the corner of Smith Street and Harford Street, Hockley, has been submitted to me by the Building Surveyor. As the proposed position of the bakehouse is a cellar and deficient in head space, and is necessarily excluded from the advantages of space, light and ventilation, I have refused my sanction to its establishment.

I consider such a position is calculated to be injurious to the health of persons working in the cellar, and probably to persons occupying the rooms above.

vii. *Offensive Trades*.—In January last I received a complaint of a nuisance from a shoddy-mill in the town, and reported to your Committee on the matter as follows:—

Offensive trades.

“I have inspected premises at the back of 235, Gooch Street, where a kind of shoddy-mill has been established.

Report on Shoddy Mill.

“The works belong to Mr. Beaumont Shaw, 5, Grange Road, Batley, Yorkshire, but are managed by a son, Mr. Harry Shaw, residing at 177, Bath Row.

“The business has been in operation about three months, and about one ton of shoddy a week is manufactured from about twenty-four or twenty-five hundredweight of dirty woollen rags.

“No attempt at disinfection or cleansing of any kind is made, and the product, which is a sort of floeks and may probably be a source of infection, is used for stuffing cheap furniture and possibly bedding.

“A fine shower of woolly fibre from the ventilating flue is continually going on more or less, but the evil is said to have been aggravated on one occasion a short time back, owing to the bricks having been displaced from the chimney flues.

“It appears to me that a manufacture of this kind is calculated to disseminate the germs of disease, as it is impossible to say that these rags are not many of them seriously infected.”

viii. *Fortnightly Reports of the Medical Officer of Health to the Health Committee*.—I have reported to your Committee, at each of its meetings, on various subjects, including the following:—

Fortnightly Reports of Medical Officer of Health.

1. The general health of the City, including the total death-rate, Zymotic death-rate, and average age at death.
2. The occurrence of Infectious disease, and the results of the investigation of certain of the most dangerous cases.
3. The Waters supplied from shallow wells and by the Corporation.
4. Articles of Food, Drink, and Drugs obtained for analysis.
5. Diseased and unwholesome Food.
6. Reports on special questions in pursuance of resolutions, instructions, and otherwise.

Having been requested by your Committee to report to you on the great reduction in the mortality from Scarlet Fever observed of late, I did so as follows:—

Report on Scarlet Fever

“During the last ten years there has been a very marked diminution in the number of deaths from Scarlet Fever, and in

Report on
Scarlet Fever.
(continued).

order to make the information more complete as well as to show that the diminution is not limited to a short and accidental period I have collated from my previous Reports the figures for fifteen years.

“The Scarlet Fever developments in Birmingham may be considered to occur once in five years. During my term of office, or rather from 1873 to 1887 there have been three such developmental waves, viz. :—from 1873 to 1877, from 1878 to 1882, and from 1883 to 1887, all inclusive. Their relative intensity is best shown by the numbers of deaths in each of these periods. They are as follows :—

1873 to 1877	...	...	...	2,030 deaths.
1878 „ 1882	...	...	...	1,844 „
1883 „ 1887	...	...	...	564 „

“This makes an average annual number of deaths for each of the three periods as under :—

1st period	...	...	...	...	406
2nd „	...	...	...	...	369
3rd „	...	...	...	...	113

“It is thus seen that there has been a continuous fall in the numbers of cases and of deaths which have occurred in the Borough during the last fifteen years.

Year.						Number of deaths from Scarlet Fever.
1870	...	...	...	...	...	324
1871	...	...	...	...	...	127
1872	...	...	...	...	...	409
1873	...	...	...	...	...	587
1874	...	...	...	...	...	737
1875	...	...	...	...	...	265
1876	...	...	...	...	...	204
1877	...	...	...	...	...	237
1878	...	...	...	...	...	995
1879	...	...	...	...	...	306
1880	...	...	...	...	...	123
1881	...	...	...	...	...	164
1882	...	...	...	...	...	256
1883	...	...	...	...	...	326
1884	...	...	...	...	...	134
1885	...	...	...	...	...	31
1886	...	...	...	...	...	39
1887	...	...	...	...	...	34

CITY HOSPITAL.

City Hospital.

This Institution has received during the year 528 cases of Scarlet Fever, and 18 of Smallpox, against 10 of Smallpox and 438 of Scarlet Fever in 1887. The proportion of Scarlet Fever cases removed to the number of Deaths in the whole City, the only test we have of the proportion of cases removed to total cases because all the cases are unfortunately not reported, continues to increase, having risen from less than 0·5 to one in 1876

and each of the two following years, and less than three in every other year subsequent to 1879, and prior to 1885, to 6·6 in the latter year, 11·0 in 1886, 12·9 in 1887, and still further to over 13 to one in the year under notice. This continual and very largely increased proportion to deaths of cases removed is clear proof of the good estimation in which the hospital is now held, and the ever growing recognition manifested of the immense advantages which isolation and the special and favourable treatment that patients receive confer upon the community.

The number of patients suffering from each disease treated here in every quarter since the opening of the first wards in 1874, is as follows :—

DATE.				Smallpox.	Scarlatina.	Total Cases.		
1874.								
4th Quarter	...	...	...	194	...	—	...	194
(2nd Nov. to the end of the year)								
1875.								
1st Quarter	...	...	...	186	...	—	...	186
2nd „	..	...	...	169	...	—	...	169
3rd „	...	...	...	53	...	13	...	66
4th „	...	...	...	12	...	7	...	19
Totals	...	...	...	420	...	20	...	440
1876.								
1st Quarter	...	...	...	2	...	1	...	3
2nd „	...	...	...	2	...	4	...	6
3rd „	..	...	...	2	...	5	...	7
4th „	...	...	...	5	...	28	...	33
Totals	...	...	...	11	...	38	...	49
1877.								
1st Quarter	...	...	...	4	...	20	...	24
2nd „	...	...	...	19	...	7	...	26
3rd „	...	...	...	15	...	13	...	28
4th „	...	...	...	0	...	3	...	3
Totals	...	...	...	38	...	43	...	81
1878.								
1st Quarter	...	...	...	3	...	13	...	16
2nd „	...	...	...	4	...	34	...	38
3rd „	...	...	...	6	...	139	...	145
4th „	...	...	...	7	...	238	...	245
Totals	...	...	...	20	...	424	...	444
1879.								
1st Quarter	...	...	...	1	...	60	...	61
2nd „	...	...	...	0	...	37	...	37
3rd „	..	...	...	3	...	40	...	43
4th „	...	..	...	0	...	47	...	47
Totals	..	...	...	4	...	184	...	188
1880.								
1st Quarter	..	...	...	2	...	45	...	47
2nd „	..	...	...	3	...	27	...	30
3rd „	...	...	...	8	...	36	...	44
4th „	..	..	...	3	...	62	...	65
Totals	...	...	...	16	...	170	...	186

City Hospital
(continued)

Cases admitted
each year.

Cases
admitted into
the City Hospi-
tal each year
(continued).

1881.	Smallpox.	Scarlatina.	Total Cases.
1st Quarter	8 ...	36 ...	44
2nd „	8 ...	79 ...	87
3rd „	1 ...	91 ...	92
4th „	0 ...	127 ...	127
Totals	17 ...	333 ...	350
1882.			
1st Quarter	0 ...	90 ...	90
2nd „	54 ...	120 ...	174
3rd „	38 ...	197 ..	235
4th „	13 ...	220 ...	233
Totals	105 ...	627 ...	732
1883.			
1st Quarter	46 ...	120 ...	166
2nd „	160 ...	157 ...	317
3rd „	481 ...	198 ...	679
4th „	403 ...	163 ...	566
Totals	1,090 ...	638 ...	1,728
1884.			
1st Quarter	359 ...	41 ...	400
2nd „	56 ...	94 ...	150
3rd „	12 ...	124 ...	136
4th „	10 ...	101 ...	111
Totals	437 ...	360 ...	797
1885.			
1st Quarter	66 ...	59 ...	125
2nd „	4 ...	37 ...	41
3rd „	9 ...	50 ...	59
4th „	2 ...	58 ...	60
Totals	81 ...	204 ...	285
1886.			
1st Quarter	1 ...	66 ...	67
2nd „	1 ...	98 ...	99
3rd „	0 ...	114 ...	114
4th „	0 ...	150 ...	150
Totals	2 ...	428 ...	430
1887.			
1st Quarter	0 ...	100 ...	100
2nd „	1 ...	93 ...	94
3rd „	0 ...	142 ...	142
4th „	9 ...	103 ...	112
Totals	10 ...	438 ...	448
1888.			
1st Quarter	13 ...	69 ...	82
2nd „	4 ...	86 ...	90
3rd „	1 ...	174 ...	175
4th „	0 ...	199 ...	199
Totals	18 ...	528 ...	546

I have on several occasions pointed out that Scarlet Fever has invariably appeared here, as my records show, in periodical waves of severity. Periodicity of
Scarlet Fever.

From my figures of Scarlatinal mortality, which extend back to 1873, I find that since that year three waves of this disease have passed over the town, and in order to show their duration and relative intensity I may mention that the first wave extended from 1873 to 1877, the second from 1878 to 1882, and the third from 1883 to 1888; the crest of the wave was in each case at the beginning of the period, while the deaths in these three series of years numbered respectively 2,030, 1,844, and 604, the two former periods each containing five years, and the latter six. It will be noticed that the last wave is spread over a longer period and has resulted in a far less mortality than either the first or the second, both of which lasted the length of time, viz., five years, usually observed in other parts of England. These facts and figures afford much ground for encouragement, even if the present wave has not yet reached its highest point. They are sufficient to justify the hope that the next wave may prove equally, if not more benign; but the only wise policy is to so prepare that, if at any moment the long-continued lull in this disease should at any time be succeeded by a sudden and extensive outbreak, we may not be found unprepared to cope with the epidemic and incapable of satisfactorily treating at the City Hospital all cases willing to be removed there. At present the accommodation at the City Hospital is insufficient. Need of
Hospital
Extension. First of all the ordinary demands upon the Hospital are larger now than they used to be, independently of the greater value now attached to it by the public, from the fact that the other hospitals of the town do not now themselves treat Scarlet Fever cases, but send them to us. Then again the great increase in the number of cases reported which has been going on, generally speaking, during the past twelve months only confirms the opinion that the periodicity, to which I have referred, has not been destroyed but only retarded by the circumstance that the great majority of cases formerly treated at home are now isolated in the City Hospital. To show the great increase in the number of removals I may state that while in January, 1888, the number of cases in the Hospital was 28, and in the following month was on one occasion only 27, it afterwards pretty gradually rose, with some slight fluctuations, to 113 in November, and stood at 104 on the last day of the year, while at the time of writing the resources of the Institution are taxed to the uttermost, there being no less than 127 cases under treatment.

One can readily understand that prompt removal and isolation of nearly all the cases of this disease would be likely to affect the ordinary periodicity of such a highly contagious affection, and that the somewhat longer interval since the

Need of
Hospital
Extension
(continued).

culmination of the last wave is really due to the improved facilities which now exist in the City, as compared with former years, for separating the infected from the healthy, and at the same time to the greater readiness with which all classes have availed themselves of the advantages which the Hospital offers. If this conjecture be correct then it is only too likely that we have to some extent, at all events, postponed—but only postponed and not escaped—the periodical development which characterises Scarlet Fever.

Too much importance should not be attached to the comparatively slight fatality recently observed here and in other parts of the country from this disease, for it is most likely that the striking decline of Scarlatinal mortality in our City during the past four years is due in part to diminished prevalence, and in part to its having assumed a milder type.

It is a recognised fact that probably no disease varies so much from time to time both in its prevalence and its malignancy, as does Scarlatina.

There are several conditions, too, peculiar to recent years, which would naturally promote a smaller case mortality in Birmingham than formerly, the most important of which is that the cases received at the Hospital are, from the greater care, better treatment and more favourable surroundings, more likely to recover than they would be at their own homes, where, speaking generally, they would not enjoy such advantages of medical treatment, superior nursing, suitable diet and atmospheric purity as they do at such an Institution. Nor can it be doubted that the improved sanitary arrangements of the City dwellings and their surroundings conduce to some extent to promote the recovery of those cases treated at their homes, by possibly lessening the malignancy of the type of the disease, so that on reception at the Hospital the disease is found to be generally of a milder character than it otherwise would be. Previous experience teaches, too, that the mortality of such epidemic diseases as Scarlet Fever and Smallpox is greater when the epidemic is at its height than its commencement or close.

It should not be forgotten, too, that if the smaller mortality of recent years really implies a diminished prevalence of this disease, then the number of children living at that period of life when they are most susceptible to the Scarlet Fever virus is now greater than at any former time, and this greater accumulation of unprotected children in the population cannot fail to suggest the possible danger that a period of greatly increased prevalence of Scarlatina may occur at no remote date.

The attacks of Scarlet Fever are most frequent in children between one and five years of age, rising to a maximum in the

third year of life, then falling at first slowly, but after the age of five years rapidly with each successive age-period to the end of life. I may say in passing that it has been clearly proved that the diminution of Scarlet Fever with the increase of age is not materially the result of the greater proportion at each successive age-period of persons who have already been attacked by Scarlet Fever, but is due to the fact that the longer an attack is deferred the less does the chance become of it occurring at all, and, even if it should occur, it is less likely to prove fatal, so that the common idea among the lower classes that children are sure to contract such diseases as Scarlet Fever sooner or later, and that therefore there are no advantages to be obtained by protecting them from infection, or to use the common phrase "the sooner they have it the better," is an incorrect notion; so that removal to hospital of cases of infectious disease does not confer illusory, but real advantages.

Need of
Hospital
Extension
(continued).

I would, therefore, impress upon your Committee the fact that practically all children born in Birmingham since the time that the last epidemic wave culminated, are yet within the period of life which is most susceptible to this disease, and that if once we became unable to cope with it and were forced, from want of Hospital accommodation, to refuse to take Scarlet Fever patients and thus compel them to remain at their homes, each of which would become a centre of infection, the consequences must be very serious.

To sum up let me again bring under your notice the following considerations:—

1. That the resources of the City Hospital are already too heavily taxed.
2. That for six years past we have had a very slight mortality from Scarlatina, and may in consequence shortly expect the full swell of the usual wave.
3. That the number of children now living in the City at ages when they are highly susceptible to this disease is doubtless far greater than at any previous time within our experience, and that therefore there is a danger of its developing to an extent beyond our power of dealing with it.
4. That none of the other Hospitals of the town now take Scarlet Fever cases, and thus the ordinary demands upon the City Hospital are far greater than ever before.

In view of these facts I would urge upon your Committee the desirability of providing, without delay, extensive Hospital accommodation. This is needed not only for future but for present requirements, and it is too late to make the provision when the pressing necessity for it has arisen.

DISINFECTING STATION.

Disinfecting
Station.

A larger number of articles than in any year since 1884, has been disinfected at the Bacchus Road Station, though this year's number is less than one-fourth that received here in 1883, when Scarlet Fever was epidemic in the town.

The number of each class of articles disinfected during each of the last eight years is as follows :—

ARTICLES DISINFECTED.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.
Beds	181	452	2,165	855	259	481	517	586
Mattresses ...	358	517	1,109	592	197	390	311	419
Sheets	164	557	1,024	1,033	279	409	396	259
Blankets	290	556	1,833	1,749	376	412	359	357
Counterpanes ...	121	264	893	593	236	351	308	361
Pillows & Bolsters	481	940	3,397	2,325	603	1,017	888	1,164
Other Articles ...	1,940	4,920	24,446	5,502	2,444	2,736	2,156	4,506
Totals	3,535	8,206	34,867	12,649	4,394	5,826	4,935	7,652

Cost of Disin-
fecting Station.

The Cost of the Station during the year is estimated at:—

	£	s.	d.
Wages	65	0	0
Horse-keep, Shoeing, &c. ...	85	0	0
Gas for Heating and Lighting...	12	19	0
Coal	4	0	0
Water	2	0	0
Total	£168	19	0

MORTUARIES.

Mortuaries.

Less use has been made of the City Mortuaries than in any year since 1882, the number of bodies taken to them having fallen from 266 in 1887 to only 138 in the past year.

The number of corpses deposited at each Mortuary during each of the last ten years is given in the Table below :—

Mortuaries.
(continued).

	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.
Moor Street ...	28	15	13	30	76	58	66	106	124	56
Ladywood Rd.	12	7	17	17	10	23	9	12	3	11
Kenyon Street	14	10	25	22	46	42	44	55	55	35
Duke Street ...	11	12	9	17	10	18	38	28	41	17
Moseley Street	6	8	8	25	26	35	37	39	43	19
Totals ...	71	52	72	111	168	176	194	240	266	138

WATER SUPPLY.

The water supplied by the Corporation from their mains has been analysed, as formerly, monthly. The results of the examinations of the samples show that taken as a whole a continued slight improvement is manifested, the amount of organic carbon and organic nitrogen both showing a further diminution. The water has also been generally less hard than in previous years; its quality has of course varied somewhat from month to month, that delivered in November being of exceptionally superior quality, both in appearance and composition, while the amount of organic matter in that obtained in the following month was higher than that in any other sample procured during the year.

Water supply.

Eighty-four well waters have also been analysed; the majority of them were so contaminated as to be dangerous for domestic use.

Well Waters.

There remain very few wells in the town which have not been examined, and the whole of them would by this time have been analysed but for the circumstance that, in a contested case of highly contaminated water, a defect in the wording of the clause under which proceedings were taken led to the case being dismissed, and to a discontinuance by your Committee for some time of the taking of samples. It is somewhat singular, but at the same time fortunate that this check to the action of your Committee with regard to polluted wells should not have occurred before the work was very nearly completed, for it cannot be doubted that the use of sewage-polluted water is one of the most prolific causes of preventable disease, and that it is the duty of Sanitary Authorities to

Contested
water case.

Contested
water case

(continued).

prevent its use as far as lies in their power. The merits of the case were not gone into—it broke down on a purely technical legal point; had they been, the water would have been shown incontestably to be very seriously polluted with sewage matter both changed and unchanged; indeed it is an unusually bad water even for a town well, and is totally unfit for domestic use, as shown by the results of Analysis, which are as follows, expressed in parts per 100,000.

Total Solid Matter ...	...	...	...	148.20
Organic Nitrogen ...	...	...	...	very large.
Ammonia ...	...	...	...	.001
Nitrogen as Nitrates ...	...	...	...	6.60
Total combined Nitrogen ...	...	...	...	6.601
Previous Sewage Contamination ...	...	...	...	65,690
Chlorine ...	...	...	...	11.2
Appearance ...	...	...	...	very slightly turbid.

Need of
Amendment of
Public Health
Act.

As long as this clause of the Public Health Act remains unchanged, a section of the public will continue, unless other influences are brought to bear, to be exposed to the serious danger of drinking sewage-polluted water, and it is not necessary in the present day for me to point out to you how serious the danger is. The question has been brought by the Town Clerk before the Council of the Municipal Corporations, and by myself before the Society of Medical Officers of Health and the Society of Public Analysts. The first-named body passed the following resolution, to be forwarded to the Local Government Board. "That the Local Government Board be respectfully requested to consider the propriety of amending Section 70 of the Public Health Act, 1875, relating to the closing of polluted wells, either by substituting the words 'dangerous to health,' for the words 'injurious to health,' or in the alternative, by inserting the words 'or dangerous' after the word 'injurious' in the same section." Resolutions to the same effect were passed by the two societies mentioned, and it is to be hoped that the necessary amendments will be made at the first suitable legislative opportunity.

Review of the
case.

This case has excited much interest throughout the country, and very different views are held regarding the legal decision upon it, as will be seen from the following remarks taken from "Public Health," July, 1888, which appear to me to possess great force and to show how different the result of the hearing of the case would probably have been if the ruling of a higher court could have been obtained, and fully justify your Committee in submitting the case to a legal tribunal.

"THE 70TH SECTION OF THE PUBLIC HEALTH ACT, 1875.

"The decision of the Birmingham Magistrates in connection with the prosecutions for polluted wells continues to be the topic of discussion among Health Officers. The point at issue

is simple. Were the Magistrates right in interpreting the words 'injurious to health,' according to the ordinary acceptance of the term? If they were, an amendment of the law is urgent. We, however, believe that their interpretation was not correct and would be set aside by the Court of Appeal.

Review of the
case
(continued).

"It has been laid down by high judicial authority 'that words which are plain enough in their ordinary sense may, when they would involve any absurdity or inconsistency, or repugnance to the clear intention of the legislature to be collected from the whole of the Act or Acts in *pari materia* to be construed with it, or other legitimate grounds of interpretation, be modified or altered so as to avoid that absurdity, inconsistency or repugnance but no further,' for then the court may predicate that the words could never have been used by the framers of the law in their ordinary sense, and the strict grammatical construction will bend to the obvious intention of the legislature.

"*Miller v. Salomons*, 7, Excheq. 546, Broom's Comm. 5. The general scope of the Public Health Act is to prevent disease, so that an interpretation of words which would give a meaning opposite to the clear intention of the Act must be examined closely. This examination is much facilitated by the fact that in the well-known 91st Section the definition of nuisance also contains the phrase 'injurious to health,' and that there have been of recent years decisions directly elucidating the legal meaning of this phrase. Attention must be specially called to the case of the '*Bishop Auckland Sanitary Authority v. The Bishop Auckland Iron and Steel Company, L.J.R.*, 52, p. 38.' This was a Justice case in which the Local Authority proceeded under the 91st Section against the Iron and Steel Company for nuisance caused by an accumulation of cinder refuse which gave off smoke and gas; the Justices found as a fact that the matter complained of was a nuisance, but not injurious to health, but the Court of Appeal held 'that nevertheless they ought not to have refused to convict, as *the nuisance was of a kind which might be injurious to health, and it was not necessary in such case under the above provision to prove that it was in fact so.*'

"In the course of the judgment Justice Stephens said: 'I should say that the words in the Section 'nuisance or injurious to health' cannot mean the same as 'nuisance injurious to health,' and the proper way to interpret them is to take them in their natural sense, viz., something which interferes with comfort or is injurious to health. A man might catch a deadly disease without being exposed to a nuisance, or there might be a nuisance existing which did not injure his health or affect his comfort. There is a recent case of *Banbury v. Page* which seems to fully bear out the view I take, where under Section 47, Public Health Act, 1875, the offence of keeping swine so as to be a nuisance was held to be complete without any evidence of there being injury to health caused thereby.'

"The argument therefore stands thus : there is a leading decision of the Court of Appeal on the same phrase occurring in another section of the same Act which virtually affirms the words 'injurious to health' mean something 'which might be injurious to health;' and further, that in nearly every case taken under the Act direct injury to health is rarely mentioned, scarcely ever proved, and that the natural everyday literal interpretation of the words is repugnant to the scope and intention of the Act ; for these reasons therefore we believe the decision that under the 90th Section direct injury to health must be proved wrong and would not be upheld by a superior court."

Miscellaneous
articles.

In addition to the analyses of the town supply and of the city wells, and of articles purchased under the provisions of the Sale of Food and Drugs Act, sixty-eight analyses of articles of a miscellaneous nature have also been made.

The number of each of the classes of articles submitted to me is given in the subjoined list :—

27 samples of Poudrette.		
14	„	Water.
9	„	Mortar.
4	„	Sewage.
2	„	Coke.
2	„	Disinfectants.
2	„	Milk.
2	„	White Lead.
1	„	Lard Oil.
1	„	Plaster.
1	„	Sewer Deposit.
1	„	Soil.
1	„	Ammoniacal Liquid.
1	„	„ Solid.

PUBLIC BATHS.

Public Baths

The remarkable and almost continuous coolness of the past summer has naturally acted as a great deterrent to bathing. It has of course affected more particularly the open-air bathing at Small Heath, where in the warm summer of 1887, 24,958 persons paid to use the baths at Victoria Park, while during the past year only 6,859 resorted thither for the purpose of bathing. The total number of bathers at all the baths has fallen from 356,632 in 1887, to 300,842 in the past year. This latter figure is far below that recorded in the long and warm summer of 1884, when more than 445,000 persons availed themselves of the baths.

RETURN OF THE NUMBER OF BATHERS AT EACH OF THE CORPORATION BATHS DURING THE LAST
TEN YEARS.

Year.	KENT STREET.			WOODCOCK STREET.			NORTHWOOD STREET.			MONUMENT ROAD.			SMALL HEATH.			TOTAL.		
	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Total.	Men.	Women.	Grand Total.
1879	105395	7274	112669	48794	1501	50295	82408	2027	84435	—	—	—	—	—	—	236597	10802	247399
1880	108253	8468	116721	71843	2051	73894	115446	3166	118612	—	—	—	—	—	—	295542	13685	309227
1881	115260	8768	124028	64014	1762	65776	106550	2704	109254	—	—	—	—	—	—	285824	13234	299058
1882	112141	8509	120650	68272	2015	70287	113036	4049	117085	—	—	—	—	—	—	293449	14573	308022
1883	101503	8025	109528	72852	2025	74877	96115	3093	99208	88073	5245	93318	8258	282	8540	366801	18670	385471
1884	115608	8812	124420	80279	2079	82358	103421	3506	106927	101173	6917	108090	23009	741	23750	423490	22055	445545
1885	90228	8749	98977	66111	1468	67579	77687	3039	80726	77791	6016	83807	17008	247	17255	328825	19519	348344
1886	83176	9009	92185	68720	1394	70114	78429	2459	80888	76750	5677	82427	13228	173	13401	320303	18712	339015
1887	87743	8588	96331	63143	1355	64498	78136	2714	80850	83963	6032	89995	24817	141	24958	337802	18830	356632
1888	86848	7848	94696	50513	1100	51613	68066	2051	70117	71911	5646	77557	6835	24	6859	284173	16669	300842

SEWERAGE WORKS.

Sewerage
Works.

The total length of sewers under the charge of the City Council at the close of the year was $201\frac{3}{4}$ miles, or two miles greater than at the end of the previous year.

STREETS AND ROADS.

Streets and
roads.

The length of streets and roads in the City at the end of the year was $201\frac{1}{4}$ miles; the whole of the streets and roads included in this mileage were declared highways with the exception of Martineau Street, Lenel Street, Vesey Street, and some new roads round Victoria Park. There are also $2\frac{1}{4}$ miles of private roads and passages.

NIGHTSOIL AND REFUSE DISPOSAL.

Night-soil and
refuse disposal.

The abolition of the midden privies continues to make some progress; but it is computed that there are still between eleven and twelve thousand of them in the City, from which 47,918 loads of nightsoil were removed in the past year. The contents of the pan privies were collected in 1,960,139 instances, while the number of loads of ashes collected was 83,302.

Water closets.

It is estimated that there are now about twelve thousand waterclosets in the City, so that the numbers of ashpit middens, and waterclosets are nearly equal. It is thus seen that the abolition of the filthy old arrangement is gradually going on and giving place to the cleaner, healthier, and in every way superior watercloset. It is only by such sanitary improvements as this that the public health can be expected to attain its highest point. The work done of late years has already had a magnificent result, not only in Birmingham, but all over the country, as shown in the decline of the Death-rate; there yet remain, however, many evils to be remedied, the removal of which is sure to be followed by still further benefit. One of the greatest of these evils is the old ashpit midden, which combines in itself every sanitary defect in its unmitigated intensity, and in my opinion is the cause of much preventable illness, physical disability, pecuniary loss and death. In these days of sanitary enlightenment and opportunity for introducing improved methods the ashpit midden can only be regarded as an anachronism, and a reproach to the community which tolerates it, and I sincerely hope in the interests of health and decency that the public will lend every assistance in its power to promote the early removal of the system and its substitution by the water-carriage system.

SANITARY WORK.

Sanitary work.

Undiminished energy continues to be maintained in the removal of nuisances calculated to be injurious to health. This is amply illustrated by the fact that more than fifteen

thousand notices have been issued from this department for the abatement of nuisances during the year. The results of this activity in the discovery and removal of dangerous sanitary defects are set forth on pages 84 and 85, from which it will be observed that 566 houses have been purified after infectious disease, more than 1,700 other houses in a filthy condition have been cleansed, 770 defective midden privies have been replaced by a better system, nearly 3,000 obstructed drains have been cleared, 778 drains either imperfectly sealed or not trapped at all have been efficiently trapped, the direct communication of 532 drains with the sewer has been severed, and nearly a thousand deposits of offensive matter, such as manure, wash and the like, have been removed.

Sanitary Work
(continued).

Magistrates' orders were granted in twelve instances where the owners refused to abate nuisances; these orders empower the Sanitary Authority to do any work necessary to remedy the nuisance and to charge the owner of the property with the expenses thus incurred. In two other instances orders were obtained to close properties, that had been certified by me to be unfit for human habitation.

I remain,

Mr. Chairman and Gentlemen,

Your obedient Servant,

ALFRED HILL, M.D.,

Medical Officer of Health.

III. APPENDIX.

(TABLES, MAP, AND CHART.)

TABLE I.

BIRTHS AND DEATHS (GROSS NUMBERS).

DATE.	BIRTHS.	DEATHS.
1888	13,673	7,835
1887	13,893	8,536
1886	14,282	8,499
1885	14,383	8,156
1884	14,991	9,043
1883	14,701	8,714
1882	14,866	8,425
1881	14,869	7,938
1880	15,111	8,088
1879	15,846	8,650
1878	15,964	9,662
Average of Ten years } 1878-1887 ... }	14,891	8,571

NOTES.

- 1.—Population at Census 1881, 400,774.
- 2.—Population estimated to the middle of the Year 1888, 447,912.
- 3.—Area in Acres, 8,400.
- 4.—Number of Inhabited Houses in City at Census 1881, 78,301.
- 5.—Average number of Persons in each House at Census 1881, 5.1.

TABLE II.

ANNUAL RATE OF MORTALITY, DEATH-RATE AMONG CHILDREN, AND DEATHS IN PUBLIC INSTITUTIONS.

DATE.	Annual rate of Mortality per 1,000 Living.	Deaths of Children under 1 year; percentage to total Deaths.	Percentage of Deaths of Children under 1 year to Registered Births.	Deaths of Children under 5 years; percentage to total Deaths.	Percentage of Deaths in Public Institutions to total Deaths.
1888	17.5	26.9	15.4	43.4	15.0
1887	19.4	28.9	17.8	44.8	14.5
1886	19.6	29.6	17.6	46.5	14.5
1885	19.1	27.6	15.7	41.8	15.7
1884	21.1	28.9	17.4	47.7	13.8
1883	21.0	26.8	15.9	43.8	15.7
1882	20.6	29.1	16.5	47.2	15.4
1881	19.7	27.7	15.0	47.1	15.3
1880	20.5	32.1	17.2	49.9	12.4
1879	21.8	27.5	15.0	49.7	14.1
1878	25.2	28.6	17.0	53.1	11.8
Average of 10 years 1878-1887	20.8	28.7	16.5	47.2	14.3

TABLE III.

Mortality from certain classes of Diseases, and proportion to population and to 1,000 deaths in 1888.

CLASS OF DISEASES.	Total Deaths.	Death Rate per 1,000 of the population.	Proportion of Deaths to 1,000 Deaths.
1—Seven principal Zymotic Diseases	875	2·0	112
2—Pulmonary (other than Phthisis)	1,620	3·6	207
3—Tubercular	813	1·8	104
4—Wasting Diseases of Infants ...	660	1·5	84
5—Convulsive Diseases of Infants...	428	1·0	55

1.—Includes Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever, and Diarrhoea.

3.—Includes Phthisis, Scrofula, Rickets, and Tabes.

4.—Includes Marasmus, Atrophy, Debility, and Premature Birth.

5.—Includes Hydrocephalus, Infantile Meningitis, Convulsions, and Teething.

TABLE IV.

SHOWING THE NUMBER OF DEATHS IN THE TEN YEARS, 1878 TO 1887, FROM THE SEVEN PRINCIPAL ZYMOTIC DISEASES, AND THE NUMBER IN 1888.

	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	Annual Average of 10 years, 1878-1887.	Proportion of deaths to 1,000 years, 1878-1887.	1888.	Proportion of deaths to 1,000 years, 1878-1887.
Smallpox ...	5	0	2	6	17	110	64	12	0	2	22	2.6	0	0.0
Measles ...	54	169	63	132	150	155	333	119	383	237	179	20.9	191	24.4
Scarlet Fever ...	995	306	123	164	256	326	134	31	39	34	241	28.1	40	5.1
Diphtheria ...	83	71	51	57	49	46	40	46	73	56	57	6.6	40	5.1
Whooping Cough ...	455	384	217	362	319	176	289	253	94	379	293	34.2	235	30.0
Fever ...	147	87	84	66	87	81	84	77	65	78	86	10.0	64	8.2
Diarrhoea ...	682	234	784	341	535	412	737	338	729	550	534	62.3	305	38.9
TOTAL ...	2,421	1,251	1,324	1,128	1,413	1,306	1,681	876	1,383	1,336	1,412	164.7	875	111.7
London ...	14,734	12,216	13,661	13,811	13,553	10,801	13,629	11,262	11,102	12,684	12,745	154.4	10,803	137.0

TABLE V.

SUMMARY OF NUISANCES AND OTHER MATTERS REPORTED AND WORK DONE BY THE OFFICERS AND MEN EMPLOYED DURING THE YEAR ENDED DECEMBER 31ST, 1888.

(Return made by MR. PARKER, Inspector of Nuisances.)

	Nuisances Reported.	Nuisances Abated.
Nuisances remaining on the Books, Dec. 31st, 1887 ...	1,539	—
Defective Drains requiring opening and clearing from obstruction	2,827	2,863
„ Spout Drains	384	324
„ Drains not efficiently trapped	805	778
„ Sink Drains requiring disconnection from the Sewer	723	532
Nuisances arising from the want of drains	74	120
„ „ „ the want of an efficient supply of wholesome water	14	15
„ „ „ the keeping of fowls	464	476
„ „ „ an accumulation of water in cellars	158	148
„ „ „ the filthy condition of privies	103	228
„ „ „ foul and defective urinals	582	374
„ „ „ the overcrowding of houses	35	41
„ „ „ the want of efficient ventilation	23	9
Swine and Swine Styes so kept as to be a nuisance	120	115
Houses reported to be unfit for human habitation	17	20
Houses disinfected, cleansed, and purified, where Zymotic disease has occurred	567	566
Filthy and unwholesome Houses requiring cleansing and whitewashing	1,918	1,737
Accumulations of wash, deposits of offensive matter, manure, &c.	980	948
Foul Ashpits and Privies requiring repairs	1,643	1,584
Houses where the Privies and Ashpits belonging thereto are so foul and defective as to require re-construct- ing to Water Closets	1,440	770
Back Yards requiring paving	670	617
Number of Dangerous Premises reported to the Borough Surveyor's Department	676	648
„ Defective Water Taps and Standpipes reported to the Water Department	850	870
Soil pipes of Water Closets requiring disconnecting from the interior of dwelling houses	112	98
Number of Cases still on the Books under notice	—	2,843
Totals	16,724	16,724
Number of Notices issued for the abatement of Nuisances during the Year ended December 31st, 1888	15,185	
Number of Cases Summoned	32	
„ „ Convicted	32	
Amount of Costs	£9 16 6	
„ Penalties	£6 0 0	

WELL WATERS.

Well Waters submitted for Analysis...	...	...	...	...	84
„ „ reported polluted	...	...	...	...	69
No. of Wells closed	...	...	...	...	48
„ Premises supplied with Tap Water	...	...	...	...	50
„ Persons Summoned	...	...	...	...	6

SMOKE NUISANCES.

No. of observations made by the Inspectors	..	...	...	3,822
„ Manufacturers Reported for the emission of dense smoke...				242
„ „ Cautioned	...	...	...	179
„ „ Summoned	...	...	...	59
„ „ Convicted	...	...	...	58
Amount of Penalties	...	...	...	£29 17 6
„ Costs	...	...	...	£24 19 0

COMMON LODGING HOUSES.

No. of Registered Common Lodging Houses	...	...	...	97
„ Lodgers allowed	...	...	...	2,270
„ Visits by day	...	...	...	11,611
„ Visits by night	...	...	...	2,998
„ Lodgers found occupying the Houses	...	...	...	40,026
„ Houses Registered under the Public Health Act, 1875	...	...	...	137
„ Lodgers allowed	...	...	...	786
„ Persons Summoned	...	...	...	2

THE CANAL BOATS ACTS, 1877 AND 1884.

No. of Canal Boats inspected during the Year	...	...	...	867
„ Canal Boats registered during the Year	...	...	...	52
„ Persons Summoned	...	...	...	7

MILKSHOPS.

No. of Milkshops registered during the year	...	...	...	122
No. of Visits	...	...	...	2,975

BAKEHOUSES.

No. of Visits	...	...	...	...	...	...	914
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SLAUGHTER-HOUSES.

(Return made by MR BIRCKLEY, Superintendent of Markets.)

No. of Visits	...	...	...	...	...	...	8,109
Voluntary Surrenders of Meat	...	...	...	...	...	...	444
Seizures of Bad Meat	...	...	...	...	...	...	16
Weight Destroyed	...	...	...	...	...	...	80,285 lbs.
Voluntary Surrenders of Fish, &c.	...	...	...	...	...	...	121
Seizures of Fish, &c.	...	...	...	...	...	...	69

CONTAGIOUS DISEASES (ANIMALS) ACT.

(Return made by MR. BIRCKLEY, Superintendent of Markets.)

No. of Visits to Railway Stations	...	...	...	...	...	1,474
No. of Visits to Cow Sheds	...	...	...	...	...	138

TABLE VI.

METEOROLOGICAL CONDITION OF THE AIR, AND AMOUNT OF RAINFALL,
FOR THE YEAR ENDING DECEMBER 31st, 1888.

Observed at 9.0 a.m. at Oakwood, Acock's Green, by myself and my son, Mr. H.
GROSVENOR HILL.

The Instruments are about 430 feet above the mean level of the sea.

1888.	Pressure of Air.	TEMPERATURE OF THE AIR.					RAINFALL. Gauge 1 foot diameter. Receiving surface 3ft. 8in. above the ground.		
	Barometer	Reading of Thermometer.					Depth of Rain depos- ited upon a square foot of surface, in inches and parts.	Measure- ment converted into weight per acre.	Number of days on which Rain fell, when 5,100ths of an inch or more was measured.
	Mean Monthly Reading (corrected and reduced to 32 degrees Fahrenheit)	Highest in Shade.	Lowest in Shade.	Range of Tempe- rature in the Month.	Mean Tempe- rature in the Month.				
Months.									
	In Parts.	Dg. Pts.	Dg. Pts.	Dg. Pts.	Dg. Pts.	In Parts.	Tons.		
January ..	29.792	56.5	20.0	36.5	37.0	0.90	91	7	
February ...	29.552	49.5	20.5	29.0	35.1	0.91	92	8	
March	29.145	56.0	25.5	30.5	37.6	2.96	299	15	
April	29.431	63.0	26.0	37.0	43.1	1.75	177	10	
May	29.568	75.5	35.0	40.5	52.5	1.03	104	4	
June	29.499	81.5	40.0	41.5	56.0	2.31	233	10	
July	29.319	73.0	39.5	33.5	56.9	5.58	564	22	
August	29.537	82.5	41.0	41.5	58.8	2.63	266	11	
September ...	29.721	69.0	37.0	32.0	54.1	1.84	186	5	
October	29.615	66.0	29.0	37.0	46.3	0.46	46	3	
November ...	29.312	60.0	31.0	29.0	45.8	4.95	500	15	
December ...	29.487	57.0	20.0	37.0	39.8	2.31	233	9	

PRICES OF COAL, FLOUR, POTATOES, AND BUTCHERS' MEAT.
AND THE NUMBER OF PAUPERS RELIEVED IN THE PARISH OF BIRMINGHAM
DURING EACH OF THE FIVE YEARS ENDED MICHAELMAS, 1884-1888.

Years.	Average Prices of Food and Fuel.				PAUPERISM. Weekly Average of Paupers relieved during the Year.	
	Coal per ton.	Flour per 224lbs.	Potatoes per ton.	Butchers' Meat per lb.	In-door.	Out-door.
1888	9/-	20/-	70/-	Beef -/4½ Mut'n -/6½	2,792	2,370
1887	8/2	22/-	82/-	Beef -/4 Mut'n -/6¾	2,778	2,863
1886	8/9¾	19/-	64/-	Beef -/4½ Mut'n -/7	2,552	3,374
1885	10/1½	20/3	91/3	Beef -/6¼ Mut'n -/6¾	2,616	3,697
1884	10/1½	22/1½	70/-	Beef -/7 Mut'n -/7¾	2,544	4,346

RAINFALL AND TEMPERATURE IN EACH MONTH AND YEAR FROM 1878 TO 1888.

MONTH.	1878.		1879.		1880.		1881.		1882.		1883.		1884.		1885.		1886.		1887.		Average for 10 yrs. 1878—1887.		1888.										
	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.	Rainfall.	No. of days on which 6-10ths of an inch or more was measured.									
January	1.96	11	43.2	10	32.4	3	0.69	4	28.4	2.41	7	40.5	4.21	14	40.3	3.04	13	43.2	1.98	9	35.9	1.95	12	35.2	2.43	11	34.1	2.16	9	36.7	0.90	7	37.0
February	1.11	8	40.1	18	38.5	16	3.12	13	36.3	2.15	5	41.9	3.53	13	42.4	1.66	11	40.8	3.40	9	42.2	1.21	4	33.2	0.85	4	38.3	2.41	10	39.5	0.91	8	35.1
March	1.17	9	43.6	9	40.7	3	0.53	11	41.0	2.57	6	45.6	1.44	9	35.1	2.74	7	43.1	1.02	7	40.2	3.26	13	38.7	1.99	8	37.9	1.80	8	40.8	2.96	15	37.6
April	2.17	11	48.3	16	43.6	7	2.35	3	44.3	4.18	17	47.0	0.98	6	47.1	1.62	9	44.2	2.99	11	45.8	2.20	9	45.7	1.33	8	43.7	2.20	10	45.6	1.75	10	43.1
May	5.33	21	54.7	13	50.1	6	1.62	7	53.9	3.19	11	52.9	1.38	9	51.5	1.06	7	52.8	2.60	14	48.3	6.31	17	51.3	1.96	10	48.6	2.92	11	51.5	1.03	4	52.5
June	3.37	14	60.8	19	56.0	17	2.55	15	57.9	4.00	15	55.7	3.63	9	57.0	2.32	5	57.4	3.97	9	58.5	1.99	7	56.6	2.45	4	61.3	3.22	11	57.7	2.31	10	56.0
July	0.98	7	63.7	18	59.0	20	4.80	9	62.5	3.83	14	60.0	3.95	11	58.4	2.67	15	61.7	0.51	3	62.3	3.49	15	62.0	1.28	5	65.4	2.71	12	61.5	5.58	22	56.9
August	6.44	18	62.0	13	60.1	4	0.80	16	57.4	2.48	12	59.2	0.64	5	60.5	1.74	4	61.1	3.31	11	56.9	2.17	9	61.1	1.91	8	61.3	3.04	10	60.3	2.63	11	58.8
September	3.15	13	56.9	12	55.6	10	4.63	9	54.4	3.03	9	53.7	5.89	15	55.9	1.19	6	58.5	1.91	10	54.5	3.38	9	57.1	2.45	13	53.5	3.09	11	55.9	1.84	5	54.1
October	3.66	16	52.2	9	49.6	11	6.38	11	45.2	6.61	15	48.9	2.64	12	49.2	1.44	7	48.8	4.61	14	44.9	3.97	16	51.7	2.35	8	44.5	3.69	12	47.9	0.46	3	40.3
November	3.15	11	39.4	12	40.9	9	2.30	16	47.3	4.56	18	42.0	4.47	15	41.9	1.61	8	41.8	3.46	14	41.1	2.08	10	43.6	2.49	15	39.6	2.92	13	41.8	4.95	15	45.8
December	2.44	11	31.2	5	35.3	13	3.48	9	37.9	4.59	18	37.8	1.02	5	40.4	2.43	12	39.5	0.65	4	37.9	4.58	16	35.0	1.78	13	36.9	2.54	11	37.4	2.31	9	39.8
Year	34.93	150	49.7	154	46.8	119	33.25	123	47.2	43.60	147	48.8	33.78	123	48.3	23.52	104	49.7	30.44	115	47.4	36.59	137	47.6	23.27	107	47.1	32.70	128	48.0	27.63	119	46.9

TABLE VIII.

NEW CASES OF DISEASE COMING UNDER TREATMENT DURING THE YEAR, 1888,
AT THE FOLLOWING INSTITUTIONS.

DISEASES.	I. General Hospital.	II. General Dispensary	III. Queen's Hospital.	IV. Children's Hospital.	V. The Work- house.	VI. Out-door Pauper Patients.	VII. City Hosptl.	TOTAL.
Smallpox	...	1	...	...	...	6	18	25
Measles	38	86	8	19	18	144	...	313
Scarlet Fever.....	7	16	11	29	1	16	528	608
Diphtheria	2	12	7	47	...	...	...	68
Whooping Cough ...	49	176	21	665	10	119	...	1,040
Croup	20	2	8	18	...	1	...	49
Diarrhoea	1,586	178	1,041	820	96	216	...	3,937
Dysentery	...	...	...	7	...	2	...	9
Asiatic Cholera	...	...	...	...	...	...	...	...
Erysipelas	22	37	19	15	12	46	...	151
Continued Fever ...	...	...	...	...	...	7	...	7
Typhus	...	...	...	...	...	...	...	...
Enteric or Typhd.	35	40	24	24	22	7	...	152
Relapsing	...	...	...	...	...	...	...	...
Febriola	27	6	3	70	...	...	...	106
Ague	...	1	3	...	...	2	...	6
Rheumatic Fever ...	88	257	134	70	...	318	...	867
Puerperal Fever ...	...	4	2	...	...	...	...	6
Bronchitis & Catarrh	1,784	4,238	764	1,400	624	2,265	...	11,075
Influenza	...	3	...	...	...	...	...	3
Pleurisy & Pneumonia	392	329	90	198	96	164	...	1,269
Phthisis	344	1,859	413	95	347	359	...	3,417
Constl. Syphilis.....	155	193	177	179	182	162	...	1,048
All other diseases ...	22,919	16,242	14,442	8,995	4,052	4,714	...	71,364
Accidents	15,704	179	11,846	177	216	49	...	28,171
Totals.....	43,172	23,859	29,013	12,828	5,676	8,597	546	123,691

The above returns are made by (I.)—George F. Crooke, Esq., M.D. ; (II.)—J. Henry Blakeney, Esq., L.R.C.P. ; William Richards, Esq., M.B., E. Dormer Kirby, Esq., M.D. ; and Arthur F. Messiter, Esq., M.R.C.S. ; (III.)—Walter R. Jordan, Esq., M.B. ; (IV.)—Thomas Henderson, Esq., M.B. ; (V.)—C. W. Suekling, Esq., M.D. ; and Jordan Lloyd, Esq., F.R.C.S. ; (VI.)—Walter Bowen, Esq., Clerk to the Guardians ; (VII.)—N. S. Manning, Esq., F.R.C.S., Medical Superintendent.

TABLE IX.—WATER: RESULTS OF ANALYSES

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen.
1888. CORPORATION SUPPLY.					
Jan. 9th	74 and 75 Coventry Street.....	6°·7	26·74	·195	·027
Feb. 6th	Bread Street, corner of Newhall St.	7°·8	25·98	·080	·014
Mar. 7th	78, Hyde Road	6°·1	28·46	·196	·027
April 4th	30 Court, Sherlock Street	5°·6	26·22	·178	·023
May 2nd	75, Navigation Street.....	10°·5	26·26	·090	·017
June 5th	50, Northbrook Street	13°·9	29·66	·191	·024
July 3rd	47, Curzon Street	15°·0	25·78	·201	·032
Aug. 1st	2 court, Ravenhurst Street	13°·3	24·88	·142	·019
Sept. 10th	39, Ladywood Road	13°·3	26·24	·139	·021
Oct. 8th	2 court, Manchester Street	10°·0	25·56	·146	·025
Nov. 6th	3, Lancaster Street.....	10°·5	25·98	·056	·008
Dec. 4th	112, Aberdeen Street	9°·4	28·88	·246	·043
	Average Results ... 1888...	10°·2	26·72	·155	·023
	" " ... 1887 ..	10°·7	27·93	·158	·027
	" " ... 1886...	11°·0	27·38	·177	·037
	" " ... 1885...	10°·7	27·37	·106	·035
	" " ... 1884...	11°·7	29·78	·103	·024
WELL WATERS.					
Jan. 2nd	28, Dawson Street	...	162·60	...	very large
" "	129, Muntz Street	...	103·80	...	rather large
" 9th	1 and 2, Oakley Road.....	...	57·60	...	large
" "	19 and 20, Glover's Road	...	72·20	...	rather large
" "	54 and 56, Golden Hillock Road ...	...	81·20	...	moderate
" "	58, Golden Hillock Road	...	83·20	...	rather large
" "	1 and 2, Barnes' Buildings, High Park Street ..	...	97·20	...	"
" "	18, Austin Street.....	...	115·80	...	"
" 16th	15, Hickman Road	...	82·60	...	"
" "	17 and 19, Hickman Road.....	...	77·20	...	large
" "	113 and 114, Gladstone Road	...	101·20	...	"
" "	Walton Place, Gladstone Road.....	...	75·20	...	"
" "	43, Wellington Road	...	54·20	...	rather large
" "	49, Wellington Road	...	59·80	...	small
" 30th	2 and 3, Gladstone Road	...	79·80	...	very large
" "	10 and 11, Gladstone Road ..	...	103·20	...	large
" "	38, Gladstone Road	...	104·80	...	very large
" "	42 and 43, Gladstone Road	...	79·80	...	rather large
" "	143 and 145, Coventry Road.....	...	78·20	...	"
" "	147 and 149, Coventry Road.....	...	74·80	...	rather small
Feb. 6th	243 and 245, Harborne Road	...	82·80	...	large
" "	10, Arthur Road	...	76·20	...	rather large
" "	7, Carpenter Road	...	36·80	...	"
" "	25, Wellington Road	...	134·80	...	"
" "	69 and 71, Belgrave Road.....	...	101·20	...	"
" "	27 and 29, Gough Road.....	...	117·80	...	very large

EXPRESSED IN PARTS PER 100,000.

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contami- nation. (Estimated.)	Chlorine.	Hardness.			REMARKS.
					Tempo- rary.	Perma- nent.	Total.	
none	·187	·214	1,550	1·4	6°·5	13°·9	20°·4	Clear ; greenish.
·001	·374	·389	3,430	1·9	5°·9	12°·0	17°·9	Very slightly turbid ; greenish blue.
·001	·418	·446	3,870	1·7	5°·6	10°·0	15°·6	Very slightly turbid ; greenish blue.
·001	·209	·233	1,780	1·5	3°·9	9°·9	13°·8	Clear ; slightly yellowish green
·001	·462	·480	4,310	1·9	4°·6	8°·9	13°·5	Slightly turbid ; greenish blue
·001	·132	·157	1,010	1·7	7°·0	9°·4	16°·4	Very slightly turbid ; greenish blue
·001	·066	·099	350	1·3	4°·5	10°·2	14°·7	
·001	·198	·218	1,670	1·9	5°·9	7°·7	13°·6	Slightly turbid, greenish yellow
·002	·066	·088	360	1·5	5°·3	7°·9	13°·2	Very slightly turbid, greenish blue
·002	·110	·137	800	1·4	5°·6	8°·9	14°·5	Very slightly turbid, yellowish green
·001	·330	·339	2,990	1·9	4°·7	10°·1	14°·8	Very slightly turbid ; greenish yellow.
none	·198	·241	1,660	1·7	6°·3	10°·1	16°·4	Clear ; dull blue.
·001	·229	·253	1,980	1·6	5°·5	9°·9	15°·4	Turbid ; brownish yellow.
·001	·272	·300	2,410	1·7	8°·5	12°·4	20°·9	
·001	·228	·266	1,970	1·6	7°·3	9°·8	17°·1	
·002	·206	·242	1,760	1·8	7°·5	9°·5	17°·0	
·002	·201	·227	1,710	1·7	7°·3	9°·2	16°·5	
·002	7·92	7·921	78,890	12·5	...	...	...	
·003	1·87	1·872	18,400	8·4	...	...	...	Very slightly turbid
·001	·99	·991	9,590	4·4	...	...	...	do.
·001	·44	·441	4,090	4·7	...	...	...	do.
·001	2·42	2·421	23,890	4·5	...	...	...	do.
·001	2·64	2·641	26,090	4·3	...	...	...	do.
·001	4·84	4·841	48,090	9·5	...	...	...	do.
·001	5·72	5·721	56,890	7·9	...	...	...	do.
·001	·55	·551	5,190	4·2	...	...	...	do.
·002	3·19	3·191	31,590	7·0	...	...	...	do.
·001	3·08	3·081	30,490	6·0	...	...	...	do.
·001	·88	·881	8,490	3·5	...	...	...	do.
·001	2·42	2·421	23,890	7·5	...	...	...	do.
none	1·76	1·760	17,280	4·1	...	...	...	do.
·001	2·20	2·201	21,690	2·8	...	...	...	do.
·001	·55	·551	5,190	7·4	...	...	...	do.
·001	3·08	3·081	30,490	4·1	...	...	...	Clear
·001	3·30	3·301	32,690	4·4	...	...	...	Very slightl turbid
·002	·99	·991	9,590	6·1	...	...	...	do.
·001	1·76	1·761	17,290	5·9	...	...	...	do.
·002	4·29	4·291	42,590	9·3	...	...	...	do.
·001	1·54	1·541	15,094	3·4	...	...	...	do.
·006	1·10	1·105	10,730	3·2	...	...	...	do.
·001	5·72	5·721	56,890	14·5	...	...	...	Clear
·001	3·74	3·741	37,090	7·9	...	...	...	Clear
·003	3·52	3·522	34,900	4·6	...	...	...	Clear

TABLE IX.—

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity	Organic Carbon.	Organic Nitrogen.
1888.	WELL WATERS—(Continued).				
Feb. 13th	15 and 16, Wordsworth Road	...	59·80	...	moderate
" "	22 and 23, Wordsworth Road	...	72·20	...	large
" "	24, Wordsworth Road	...	113·80	...	...
" "	44, Wordsworth Road	...	40·80	...	...
" 14th	7, Gloucester Street	...	419·80	...	...
" "	8, Gloucester Street	...	506·80	...	...
" "	9 and 10, Gloucester Street	...	253·20	...	...
" "	Slaughterhouse occupied by Mr. William Fletcher, in Gloucester Street	...	206·80	..	...
" "	Slaughterhouse occupied by Mr. John Willis, in Gloucester Street	...	162·80	...	...
" "	Slaughterhouse occupied by Mr. Robert Hall, Gloucester Street...	...	206·20	...	...
" "	Slaughterhouse occupied by Mr. John Allbut, Gloucester Street...	...	145·80	...	...
" "	Slaughterhouse occupied by Mr. Shorthouse, Smithfield Yard.....	...	182·80	...	...
" 20th	198, Hagley Road	...	39·20	...	large
" 27th	House occupied by Mrs. Box, The Poplars, Poplar Avenue, Sandon Road	...	28·80	...	very small
" "	House occupied by Mr. Underhill, The Poplars, Poplar Avenue, Sandon Road	...	26·60	...	moderate
" "	House occupied by Mrs. Jones, The Hollies, Poplar Avenue, Sandon Road	...	34·20	...	very small
" "	House occupied by Mrs. Lineham, The Hollies, Poplar Avenue, Sandon Road	...	34·40	...	rather large
Mar. 5th	21, Braithwaite Road.....	...	96·80	...	large
" "	90, Sampson Road	...	65·20	...	rather large
" "	21 and 22, Long Street	...	120·20	...	very large
" "	122 and 123, Long Street	...	63·60	...	large
" "	90 and 92, Gough Road	...	55·20	...	"
" "	116, Gough Road.....	...	43·40	...	"
" 12th	192 and 193, Ladywood Road	...	64·60	...	very large
" "	146, Ladywood Road	...	82·80	..	rather large
" "	66, Hagley Road	...	53·20	...	"
" "	Ivy Cottage, Summer Road	...	106·60	...	large
" "	44—48, Green Lane	...	109·20	...	very large
" "	116, Arthur Street	...	114·40	...	...
" 19th	16, Whitmore Road	...	69·60	...	large
" "	17 and 18, Whitmore Road	...	109·80	...	"
" "	19, Whitmore Road	...	148·20	...	very large
" "	5, Baker Street	...	101·60	...	"

(continued.)

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage or Animal Contami- nation. (Estimated)	Chlorine.	Hardness.			REMARKS.
					Tempo- rary.	Perma- nent.	Total.	
·001	2·20	2·201	21,690	2·5	...	...	...	Very slightly turbid
·002	2·75	2·751	27,190	6·4	...	...	...	Very slightly turbid
·480	7·70	8·095	80,630	10·3	...	...	...	Slightly turbid, brown residue
·280	1·54	1·770	17,380	2·8	...	...	...	Very slightly turbid
·320	7·48	7·743	77,110	156·8	...	...	...	do.
·500	7·26	7·672	76,400	198·6	...	...	...	Very slightly turbid, brown residue
·400	6·16	6·489	64,570	61·0	...	...	...	Very slightly turbid
·280	5·28	5·510	54,780	47·5	...	...	...	Very slightly turbid, brown residue
·800	3·85	4·509	44,770	21·5	...	...	..	Very slightly turbid, brown residue
·500	5·06	5·472	54,400	47·5	...	...	...	do.
·120	7·04	7·139	70,970	19·2	...	...	...	Very slightly turbid
·800	4·40	5·058	50,260	39·1	...	...	...	Very slightly turbid, yellow residue
·002	1·32	1·321	12,890	2·9	...	...	...	Very slightly turbid
·001	·22	·221	1,890	2·3	...	...	...	Clear
·001	·66	·661	6,290	2·3	...	...	...	Very slightly turbid
·001	1·43	1·431	13,990	3·8	...	...	...	do.
·001	1·54	1·541	15,090	3·8	...	...	...	do.
·002	1·54	1·541	15,090	5·9	...	...	...	do.
·001	·44	·441	4,090	1·8	...	...	...	Slightly turbid, residue yellowish
·003	5·72	5·722	56,900	11·8	...	...	...	Very slightly turbid
·002	2·42	2·421	23,890	6·3	...	...	...	do.
·002	1·54	1·541	15,090	2·2	...	...	...	do.
·002	1·98	1·981	19,490	3·3	...	...	...	do.
·003	1·76	1·762	17,300	4·5	...	...	...	do.
·003	1·21	1·212	11,800	6·4	...	...	...	do.
·002	1·76	1·761	17,290	5·6	...	...	...	do.
·001	5·06	5·061	50,290	7·2	...	...	...	do.
·001	5·72	5·721	56,890	8·6	...	...	...	do.
·080	3·08	3·146	30,480	18·5	...	...	...	do.
·001	2·31	2·311	22,790	2·6	...	...	...	do.
·001	3·30	3·301	32,690	7·5	...	...	...	do.
·001	6·60	6·601	65,690	11·2	...	...	...	do.
·001	3·74	3·741	37,090	5·6	...	...	...	do.

TABLE IX.—

Date of Receipt of Samples.	DESCRIPTION.	Temp. C.	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen.
1888.	WELL WATERS— <i>continued.</i>				
Mar. 19th	Saint Ann's Schools, Devon Street	...	39.20	...	..
" "	13, Willis Street	...	119.40	...	large
" 26th	309 and 311, Coventry Road.....	...	176.60	...	very large
" "	367 and 369, Coventry Road.....	...	117.80	..	..
" "	372 and 374, Coventry Road.....	...	75.20	...	...
" "	376 Coventry Road	...	60.60	...	large
" "	119 and 121, Monument Road	...	74.20	...	rather large
April 16th	216, Harborne Road	...	30.60	...	rather large
" "	218, Harborne Road	...	31.20	...	large
" "	74 and 75, Ryland Road	...	66.60	...	moderate
" "	86 and 87, Ryland Road	...	99.40	...	rather large
" "	180 and 181, Broad Street.....	...	139.40	..	do
" 17th	129, Summer Lane.....	...	168.20	...	do.
" 23rd	6, Bristol Road	..	136.60	...	...
" "	10 and 12, Bristol Road.....	...	94.20	...	moderate
" "	32 and 34, Bristol Road.....	...	91.60	...	very large
" "	40, Bristol Road	...	81.40	...	large
" "	89, Constitution Hill	...	131.40	..	very large
" 24th	367 and 369, Coventry Road.....	...	119.20	...	do.
May 7th	23, Ryland Road.....	...	52.20	...	rather large
" "	86 and 87, Ryland Road	...	104.20	...	very large
" "	97, Ryland Road.....	...	112.60	...	large
" "	Back 111, Lee Bank Road.....	...	65.40	...	...
" "	Back 107, Lee Bank Road	...	113.40	...	moderate
" "	277 and 279, Bell Barn Road	...	36.20	...	very large
					very large

(continued.)

Ammonia	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Previous Sewage Contami- nation. (Estimated.)	Chlorine.	Hardness.			REMARKS.
					Tempo- rary.	Perma- nent.	Total.	
·001	·33	·331	2,990	2·0	...	...	...	Very slightly turbid
·001	8·80	8·101	87,690	7·3	...	...	...	do.
·008	12·32	12·326	122,940	14·3	...	...	...	do.
·005	5·28	5·284	52,620	7·8	...	...	...	do.
·240	4·84	5·038	50,060	7·0	...	...	...	do.
·002	3·74	3·741	37,090	3·4	...	...	...	do.
·001	3·52	3·521	34,890	6·9	...	...	...	do.
·002	·88	·881	8,490	1·4	...	...	...	do.
·002	·22	·221	1,890	1·2	...	...	...	Very slightly turbid; floating particles
·001	1·76	1·761	17,290	1·6	...	...	...	Very slightly turbid
·001	5·28	5·281	52,490	4·8	...	...	...	Very slightly turbid
·006	5·94	5·945	59,030	32·1	...	...	...	Turbid
·160	1·10	1·232	12,000	22·2	...	..	...	Slightly turbid
none	3·52	3·520	34,900	17·5	..	...	...	Clear
·001	·88	·881	8,490	8·6	...	...	...	Clear
none	1·98	1·980	19,480	6·0	...	...	...	Clear
·001	1·76	1·761	17,290	5·8	...	...	...	Very slightly turbid
·002	7·04	7·041	70,090	18·9	...	...	...	Very slightly turbid
·002	7·04	7·041	70,090	8·1	...	...	...	Very slightly turbid
·014	·66	·672	6,400	4·3	...	...	...	Turbid, brownish; organic fibres (<i>algæ</i>) and cells, also entomostraca
·001	5·28	5·281	52,490	8·6	..	...	...	Very slightly turbid; yellowish residue
·080	6·60	3·666	66,340	8·6	...	...	...	Very slightly turbid; con- tains nitrites
·004	1·76	1·763	17,310	8·0	...	..	...	Very slightly turbid
·001	5·94	5·941	59,090	4·9	...	...	...	Very slightly turbid
none	·88	·880	8,480	2·3	...	...	...	

TABLE X.
RETURN FOR THE PERIOD 1ST JULY, 1887, TO 30TH JUNE, 1888, RESPECTING THE VACCINATION OF CHILDREN WHOSE BIRTHS WERE REGISTERED IN THE CITY DURING THE SAID PERIOD.

PARISH.	Number of Births returned in the "Birth List Sheets" as Registered.	Number of these Births duly entered in Columns 10, 11, and 13 of the "Vaccination Register" (Birth List Sheets), viz. :					Number of these Births which remained unentered in the "Vaccination Register" on account (as shown by Report Book) of				Number of these Births remaining neither duly entered in the "Vaccination Register" (cols. 3, 4, 5, and 6 of this Return) nor temporarily accounted for in the "Report Book" (cols. 8, 9, and 10 of this Return).
		Col. 10. "Successfully Vaccinated."	Col. 11.		Col. 13. "Dead, Unvaccinated."	Postponement by Medical Certificate.	Removal to Districts the Vaccination Officer of which has been duly apprised.	Removal to places unknown or which cannot be reached; and cases not having been found.			
			"Insusceptible of Vaccination."	"Had Smallpox."							
1	2	3	4	5	6	8	9	10	11		
Birmingham ...	8,176	6,791	18	1	831	85	59	341	50		
Aston (within the City)	5,273	4,208	9	—	617	64	16	235	124		
Edgbaston (")	383	340	1	—	19	18	—	4	1		

Table of the Number of Deaths occurring in each Street in the City of
Birmingham during the Year, 1888.

STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases
A			Beach Street ...	5		Burbury Street ...	3	10
Abberley Street ...		1	Beak Street ...	4		Burlington Passage ...		
Abbey Street ...	1	8	Bear Lane ...			Butler Street ...	2	4
Aberdeen Street ...		14	Beatrice Crescent ...			Butler Street South ...	1	1
A. B. Row ...	1	8	Beaufort Road ...	5		Butlin Street ...		3
Ada Street ...			Bedford Road... ..	4		C		
Adam Street ...	6	19	Beechfield Road ...	1		Calthorpe Road ...		5
Adderley Street ...		8	Belgrave Road ...			Cambridge Crescent ...		
Adelaide St., Deritend ...		7	Bell Barn Road ...	4	19	Cambridge Street ...		2
Albany Road ...			Bellis Street ...		3	Camden Drive ...		4
Albert Street, Deritend ...	1	3	Bell Street ...			Camden Grove ...		1
Albert St., St. Martin's ...			Belmont Passage ...		4	Camden Street ...	3	40
Albion Street ...			Belmont Row ...		9	Camp Hill ...		13
Alcester Street ...	1	12	Benacre Street ...	1	16	Camp Street ...		7
Alexandra Road ...	1	3	Bennett's Hill ...		1	Canal Street ...		3
Alexandra Street ...		9	Berkley Street ...			Cannon Street ...		
Alfred Street ...			Berners Street ...		5	Cape Lane ...		1
Algernon Road ...		1	Bertram road ...		1	Cape Street ...		4
Allecock Street ...	1	4	Beswick Street ...			Cardigan Street ...	1	10
Allen's Road ...	2	3	Betholom Row ...			Carlisle Street ...	1	7
Allesley Street ...	1	4	Birchall Street ...		4	Carlton Road ...		
Allison Street ...	3	20	Bird Lane ...		1	Carlyle Road ...		1
All Saints' Road ...		3	Bishopsgate Street ...	1	21	Carnarvon Road ...		
All Saints' Street ...		2	Bishop St., St. Martin's ...	1	15	Caroline Street ...		2
Alma Cresceent ...		1	Bishop Street, St. Mary's ...			Carpenter Road ...		2
Alma Street ...	1	1	Bishop Street South ...			Carr's Lane ...		
Alston Street ...		8	Bissell Street ...	1	9	Cartland Road ...		4
Ampton Road ...		1	Blake Lane ...			Carver Street ...	3	9
Anderton Road ...		6	Blews Street ...	3	7	Castle Street, St. Martin's ...		
Anderton Street ...		15	Blews Street West ...	1	6	Castle Street, Deritend... ..		10
Andover Street ...			Bloomsbury ...	1	2	Catheart Street ...		
Angelina Street ...	2	12	Bloomsbury Street ...	1	22	Cato Street ...	1	16
Argyle Street ...	1	6	Blucher Street ...	2	5	Cato Street North ...		2
Armoury Road ...			Blythe Street ...	1	13	Cattell Road ...	3	19
Arsenal Street ...	1	1	Bolton Road ...	6	28	Cattell Grove ...		2
Arthur Road ...			Bolton Street ...		4	Cavendish Road ...	1	7
Arthur Street ...	2	25	Bond Street ...			Cecil Street ...	1	11
Ashford Street ...		5	Bordesley Green ...	1	11	Centre Row ...	1	3
Ashley Street ...	1	14	Bordesley Green Road ...			Chad Road ...		2
Ashled Row ...		10	Bordesley Park Road ...	3	24	Chandos Road ...		4
Aston Brook Street ...		1	Bordesley Street ...	2	11	Chapel House Street ...		2
Aston Road ...	4	14	Bow Street ...	1	6	Chapel Street ...		2
Aston Street ...	2	9	Bowyer Street ...		1	Chapman Road ...		3
Asylum Road ...	1	5	Bracebridge Street ...	3	7	Charles Arthur Street ...	2	14
Athole Street ...			Bradford Street ...	2	27	Charles Henry Street ...	3	21
Atlas Road ...		2	Braithwaite Road ...		1	Charles Road ...		1
Auckland Road ...	3	7	Braston Street ...		9	Charlotte Road ...		1
Augusta Street ...		2	Brasshouse Passage ...		2	Charlotte Street ...		6
Augustus Road ...		1	Brass Street ...	1	6	Chattaway Street ...	1	2
Austin Street ...	1	3	Bread Lane ...			Cheapside ...	5	24
Avenue Road ...			Bread Street, St. Paul's ...		2	Cheatham Street ...		1
B			Bread St., St. Martin's ...			Chequers Walk ...		1
Bacchus Road ...	3	6	Brearley Street ...	6	43	Cherry Street ...		
Bagot Street ...	1	12	Brearley Street West ...			Cherry Wood Road ...	1	7
Bailey Street ...		1	Brewery St., Deritend... ..			Chester Street... ..	1	8
Baker Street ...	3	7	Brewery St., St. Mary's ...		2	Cheston Road ...		2
Balloon Street ...		8	Brewery St., Duddeston ...			Christ Chnreh Passage ...		
Balsall Heath Road ...			Brickiln Street ...			Church Road, Duddeston ...		7
Banbury Street ...		4	Bridgo Road ...		1	Church Road, Edgbaston ...		
Barford Road ...		9	Bridge Street, Neehells ...			Church Street ...		2
Barford Street ...	2	32	Bridge Street Duddeston ...			Clarondon Road ...		4
Barford Street South ...			Bridge Street St. Thomas ...		2	Claremont Road ...		1
Barker Street ...	1	9	Bridge Street West ...	5	30	Clark Street ...	3	22
Barlow's Road ...			Bristol Road ...	1	13	Claverdon Street ...	4	8
Barn Street ...		7	Bristol Street ...		16	Claybrook Street ...		2
Barraek Street ...		5	Broad Street ...	2	21	Clement Street ...		6
Barr Street ...	1	19	Bromsgrove Street ...		19	Cleve Terrace ...		1
Barr Street West ...			Brookfield Road ...		1	Clissold Street ...		2
Bartholomew Row ...		4	Brook Road ...			Cliveland Street ...		1
Bartholomew Street ...		14	Brook Street ...		2	Clive Passage ...		1
Barwell Road ...		5	Broom Street ...		4	Clyde Street ...		6
Barwick Street ...			Brunton's Walk ...			Coach Yard ...		
Baskerville Passage ...			Buckingham Street ...	2	11	Coleman Street ...	5	14
Baskerville Place ...			Buck Street ...		4	Coleshill Street ...		8
Bask Passage ...		1	Bullock Road ...		1	College Street ...	1	2
Bath Row ...		7	Bullock Street... ..	2	5	Colmore Row ...		2
Bath Street ...		3	Bull Ring ...		5	Commercial Street ...		
Beachfield Road ...			Bull Street ...	1	2	Communication Row ...	3	1

STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases
Congreve Street ...			Eversley Road ...	2	9	Great King Street ...	2	15
Constance Road ...			Exeter Row ...		1	Great Lister Street ...	7	35
Constitution Hill ...	1	6	Eyre Street ...	1	2	Great Russell Street ...	2	20
Conybere Street ...	1	18				Great Tindal Street ...	1	6
Cook's Hill ...			F			Greenfield Crescent ...		
Cook Street ...	1	8	Factory Road ...		1	Green Lane ...	4	20
Cooksey Road ...	5	20	Falconer Road ...			Green's Court ...		
Cope Street ...	1	6	Farm Road ...		2	Green Street ...		1
Coplow Street ...	3	6	Farm Street ...	10	51	Green's Village ...		
Coralie Street ...		6	Farquhar Road ...		1	Greenway Street ...	2	16
Corporation Street ...		5	Fawdry Street ...			Grosvenor Row ...		
Cotton Row ...			Fazeley Street ...		5	Grosvenor Street ...		2
Cotton Street ...			Fisher Street ...	2	2	Grosvenor Street West ...		15
Coventry Road ...	3	32	Fleet Street ...	2	6	Grove Street ...		2
Coventry Street ...		6	Floodgate Street ...	3	13	Guest Street ...		5
Cowper Street ...		12	Florence Street ...	3	5	Guildford Street ...	1	1
Cox Street ...	2	6	Fordrough Lane ...			Gullet, St. Mary's ...		
Coxwell Road ...		4	Fordrough Street ...		3	Gullet, Deritend ...		
Crabtree Road ...	2	5	Ford Street ...	1	14	Gullet, St. Thomas's ...		
Cranemore Street ...		1	Forge Street ...					
Cregoe Street ...	1	10	Forster Street ...	1	4	H		
Crescent ...	1	22	Fouldry Road ...		4	Hadley Street ...		1
Crescent Wharf ...		2	Fowler Street ...		1	Hagley Road ...		13
Crompton Road ...		2	Fox Street ...		5	Halberton Street ...	3	4
Cromwell Street ...	7	44	Francis Road ...		8	Hall Hill Road ...		
Crooked Lane ...			Francis Street ...	4	19	Hall Street ...		1
Cross Street ...			Frankfort Street ...	2	10	Hampton Street ...		13
Cuckoo Road ...	3	9	Franklin Street ...		1	Hampton Row ...		
Cumberland Street ...		2	Frank Street ...	1	4	Handsworth New Road ...		
Curzon Street ...	1	2	Frederick Road ...	1		Hanley Street ...	3	10
Cuthbert Road ...		1	Frederick Street ...		1	Hanover Street ...		3
			Freeman Road ...	1		Harborne Road ...		4
D			Freeman Street ...			Harding St., All Saints ...		
Dale End ...		5	Freeth Street ...	2	6	Harford Street ...	1	3
Darnley Road ...	1		Friston Street ...		6	Harrison's Road ...		2
Dart Street ...		1				Hatchett Street ...	2	16
Dartmouth Street ...	4	18	G			Hawkes Street ...	2	4
Darwin Street ...	7	23	Galton Street ...	1	3	Heath Mill Lane ...	2	19
Dawson Street ...		1	Garbett Street ...	3	11	Heath Street ...	2	30
Dean Street ...		3	Garrison Lane ...	4	32	Heath Street South ...		
Denbigh Street ...		2	Garrison Street ...		3	Heaton Street ...	2	13
Dearman Road ...		5	Gas Street ...			Helena Street ...		
Derby Street ...		4	Geach Street ...		7	Hemage Street ...	4	38
Devon Street ...	9	17	Gee Street ...		2	Henley Street ...	1	10
Devonshire Street ...	1	16	Gem Street ...		5	Henn Street ...		
Digbeth ...	2	10	George Road ...		2	Henn's Walk ...		
Digby Street ...		3	George Street, Nechells ...			Henrietta Street ...		
Doe Street ...	1	3	George Street, St. Paul's ...		6	Henry Street ...	2	13
Dolman Street ...	1	9	George Street West ...	3	22	Herbert Road ...	5	16
Dolobran Road ...	2	12	Gerrard Street ...			Hermitage Road ...		
Don Street ...	1	4	Gibb Street ...	1	2	Hickman Road ...		
Dora Road ...			Gillott Road ...		1	Hick Square ...		
Dover Street ...			Gladstone Road ...		4	Hick Street ...		5
Drury Lane ...		1	Glebe Passage ...			Highfield Road ...		4
Duchess Road ...		1	Glebe Street ...		3	Highgate Lane ...		
Duddleston Mill Road ...	1	19	Glooucester Street ...		1	Highgate Place ...		3
Duddleston Row ...	2	7	Glover's Road ...		3	Highgate Street ...	5	24
Dudley Road ...	3	21	Glover Street ...	2	12	High Park Street ...	1	4
Dudley Street ...		2	Godwin Street ...		1	High Street ...		10
Dugdale Street ...	2	8	Golden Hillock Road ...	1	6	High Street, Bordesley ...		20
Duke Street ...	1	8	Gooch Street ...	1	16	High Street, Deritend ...	3	6
Dymoke Street ...	5	13	Goode Street ...	1	4	Hill Street ...		
			Good Knave's End ...			Hinekley Street ...		
E			Goodman Street ...		1	Hingeston Street ...	6	15
Eastern Road ...			Goodrick Street ...		3	Hob Moor Road ...		1
Easy Row ...		1	Gopsall Street ...	1	4	Hockley Hill ...		8
Edgbaston Road ...			Gordon Street ...		1	Hockley Pool Road ...		
Edgbaston Street ...		1	Gosta Green ...		2	Hockley Street ...	1	11
Edmund Street ...	1		Gough Road ...		5	Holborn Hill ...	1	5
Edward Road ...			Gough Street ...	1	7	Holland Street ...		1
Edward Street ...	3	11	Grace Road ...	1	7	Holiday Street ...		8
Elkington Street ...			Grafton Road ...			Hollier Street ...	1	7
Ellen Street ...	2	14	Graham Street ...		8	Holloway Head ...	2	10
Ellis Street ...		4	Grange Road ...	1	7	Holly Road ...		4
Elvetnam Road ...		1	Grantham Road ...		4	Holt Street ...	3	8
Emily Street ...		17	Grant Street ...		10	Hooper Street ...	2	1
Emmeline Street ...	1	2	Granville Street ...	1	7	Hope St. (St. Martin's) ...	3	23
Enfield Road ...			Great Barr Street ...	2	16	Hope St. (All Saints') ...		1
Engine Street ...			Great Brook Street ...	3	15	Horse Fair ...		
Erasmus Road ...		4	Great Charles Street ...		5	Hospital Street ...	7	43
Ernest Street ...			Great Colmore Street ...	2	26	Howard Place ...		
Erskine Street ...		7	Great Francis Street ...	14	30	Howard Street ...	1	2
Essex Street ...		7	Great Hampton Row ...	7	16	Howe Street ...	1	22
Essington Street ...	1	5	Great Hampton Street ...	1	8	Hubert Street ...		

STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases
Hunpage Road ...			Lennox Street ...	4	9	Mill Lane ...		4
Hunter's Lane ...			Leopold Street ...	4	6	Mill Street ...		2
Hunter's Vale ...		1	Lilly Green ...			Milton Street ...		6
Hurst Street ...		12	Lingard Street ...	2	3	Milward Street ...		2
Hutton Street ...	1	5	Link Road ...			Minories ...		
Hyde Road ...		9	Lionel Street ...		10	Moat Lane ...		1
Hylton Street ...			Lister Street ...	2	6	Moat Row ...		1
I			Little Ann Street ...	2	4	Moilliett Street ...	1	1
Icknield Port Road ...	6	34	Little Barr Street ...		2	Moland Street ...	2	12
Icknield Square ...	2	13	Little Bow Street ...		3	Mole Street ...		2
Icknield Street ...	1	27	Little Broom Street ...			Mona Road ...		1
Inge Street ...		11	Little Charles Street ...			Monmouth Street ...		
Ingleby Street ...	1	10	Little Cannon Street ...			Montague Road ...		
Inkerman Street ...	1	10	Little Cherry Street ...			Montague Street ...		5
Irving Street ...	5	30	Little Edward Street ...	2	1	Montgomery Street ...		1
Islington ...			Little Francis Street ...		1	Montpellier Street ...		1
Islington Row ...	1	3	Little Green Lane ...	4	21	Monument Road ...	5	22
Ivy Lane ...		4	Little Hill Street ...			Moore's Row ...		2
J			Little King Street ...		6	Moorson Street ...	2	10
Jamaica Row ...		1	Little Shadwell Street ...			Moor Street ...		9
James Street ...			Liverpool Street ...		2	Moreton Street ...		7
James Turner Street ...		5	Livery Street ...		6	Morville Street ...	3	12
James Watt Street ...			Lloyd Street ...		1	Moseley Road ...	3	20
Jenkins Street ...	1	3	Lodge Road ...	3	23	Moseley Street ...	3	11
Jennens Row ...		3	Lombard Street ...	1	10	Mott Street ...	1	9
Johnson Street ...		2	Loudon 'Prentice Street ...			Mountfield Road ...		
Johnstone Street ...		2	Long Acre ...	4	22	Mount Pleasant ...		8
John Bright Street ...			Longmore Street ...		4	Mount Street ...	1	12
K			Long Street ...		8	Musgrave Road ...		4
Keeley Street ...		3	Lord Street ...	4	11	Muntz Street ...		9
Kelynge Street ...	2	15	Louisa Street ...		6	N		
Kendal Road ...			Loveday Street ...		2	Navigation Street ...	3	4
Kent Street ...	1	5	Love Lane ...		2	Neehells Park Road ...	3	27
Kont Street North ...			Lower Dartmouth Street ...			Neehells Place ...		10
Kenyon Street ...	1	14	Lower Darwin Street ...			Needham Street ...		
Key Hill ...	1	2	Lower Dean Street ...			Needless Alley ...		
King Alfred's Place ...		1	Lower Essex Street ...	3	16	Nelson Street ...	6	14
King Edward's Place ...		6	Lower Fazeley Street ...	1	3	Nelson Street South ...		1
King Edward's Road ...		15	Lower Henry Street ...			Nelson Street West ...		
Kingseote Road ...			Lower Hurst Street ...	3	12	Netherlands ...		
Kingston Road ...	1	1	Lower Hurst Street East ...			New Bartholomew St. ...	1	4
King Street ...			Lower Lawley Street ...			New Bond Street ...	1	
Kyott's Lake Road ...		1	Lower Loveday Street ...		2	New Bridge Street ...		
Kyrwick's Lane ...		5	Lower Pershore Street ...			New Canal Street ...	1	16
L			Lower Priory ...		1	New Church Street ...		
Ladypool Lane ...		5	Lower Russell Street ...			Newdegato Street ...		2
Ladywell Passage ...			Lowe Street ...		4	New Edmund Street ...		
Ladywell Walk ...			Lower Temple Street ...		18	New England ...		
Ladywood Road ...	4	14	Lower Tower Street ...	5	18	New Hall Hill ...		3
Ladywood Grovo ...			Lower Trinity Street ...		5	New Hall Street ...	1	10
Lancaster Street ...	1	11	Lower Windsor Street ...			New Inkleys ...		
Lander Street ...			Loxton Street ...	1	4	New John Street ...	8	21
Landor Street ...			Ludgate Hill ...		2	New John Street West ...	6	54
Langley Road ...	1	1	Ludgate Hill Passage ...			New Market Street ...		2
Lansdowne Street ...		5	Lupin Street ...	2	21	New Meeting Street ...		
Larches Street ...		5	Lyttleton Road ...			New Spring Street ...	2	14
Latimer Street ...	2	7	M			New Street ...	2	1
Latimer Street South ...	4	14	Maedonald Street ...		6	New Summer Street ...	4	23
Lawden Road ...	2	9	Main Street ...		7	Newton Road ...		
Lawley Street ...	3	19	Malvern Hill Road ...		3	Newton Street ...		5
Lawrence Street ...	2	11	Manchester Street ...	2	4	Newtown Row ...	6	37
Lease Lane ...		4	Manor Road ...			Nile Street ...		
Ledsam Street ...	3	14	Market Street ...	1		Nineveh Road ...		
Lee Bank Road ...	1	12	Mark Lane ...		1	Noel Road ...		4
Lee Crescent ...	1	1	Marroway Street ...	1	1	Norfolk Road ...		
Lee Mount ...			Marshall Street ...		5	Norfolk Street ...		
Leek Street ...			Martineau Street ...			Norman Street ...	1	8
Lees Street ...		6	Marshall Street South ...		1	Northampton Street ...		
Legge Lane ...		4	Mary Ann Street ...		1	Northbrook Street ...		5
Legge Street ...	1	13	Mary Street ...			Northumberland Street ...	1	8
Lench Street ...			Masshouse Lane, St. Mtns ...		1	North Warwick Street ...		
			Masshouse Lane, Edgbsn ...			Northwood Street ...	2	12
			Meadow Road ...			North Street ...		
			Meeting House Yard ...		9	Norton Street ...		1
			Melville Road ...			Norwood Road ...	2	5
			Meriden Street ...			Nova Scotia Street ...		1
			Metchley Lane ...			Nursery Road ...	1	2
			Metchley Park Road ...					
			Miles Street ...	3	13			
			Milk Street ...	3	10			
			Miller Street ...	4	12			

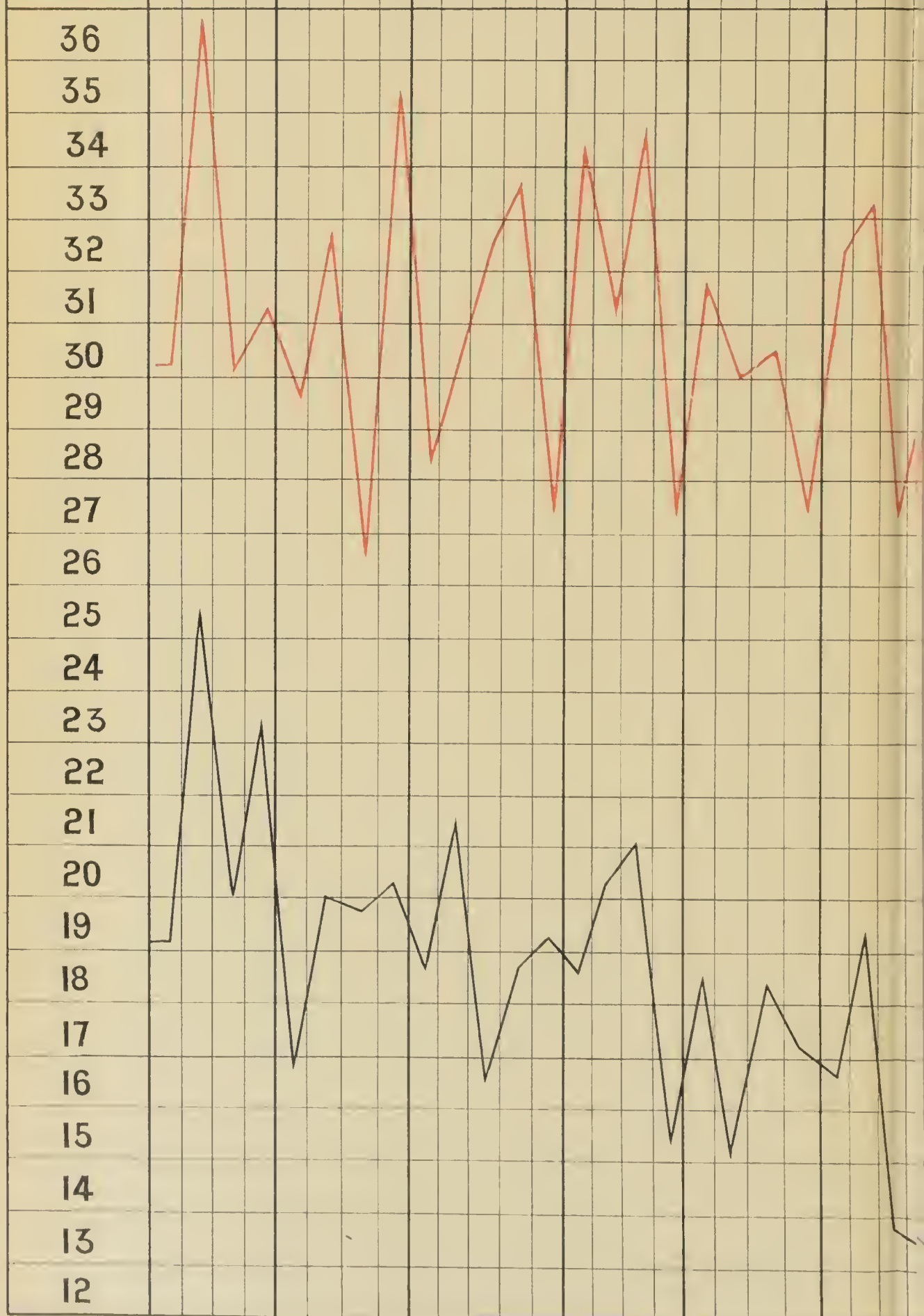
STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases	STREETS.	Zymotic Diseases	Other Diseases
O			R					
Oakley Road ...	1	1	Radnor Street ...		3	Shadwell Street ...		4
Old Cross Street ...	1	3	Raglan Road ...			Shakespeare Road ...	2	17
Old Meeting Street ...		2	Railway Ter., Duddeston ...	2	2	Sheffield Road ...		2
Old Square ...		1	Railway Ter., Nechells ...		9	Sheepcote Lane ...		4
Oliver Road ...			Rain Street ...		9	Sheepcote Street ...	1	11
Oliver Street ...		5	Ratcliff Place ...			Sheep Street ...		14
Oozells Street ...		2	Ratcliff Street ...			Sherborne Street ...	5	15
Oozells Street North ...		2	Ravenhurst Street ...		11	Sherlock Street ...	1	28
Orford Road ...			Rawlins Street ...	1	4	Shutt Lane ...		
Ormond Street ...		3	Rea Street ...		11	Sidney Road ...		
Osler Street ...	1	18	Rea Street South ...		3	Silver Street ...		
Oughton Place ...		1	Regent Parade ...			Sir Harry's Road ...		1
Outlet Road ...			Regent Park Road ...	1	2	Skinner Lane ...		3
Owen Street ...	2	4	Regent Place ...			Skinner Street ...		3
Oxford Street ...	1	3	Regent Row ...			Slaney Street ...	1	3
Oxford Road ...			Regent Street ...			Slough Lane ...		
Oxygen Street ...		4	Reservoir Retreat ...			Smallbrook Street ...	1	4
P			Reservoir Road ...		9	Smithfield Passage ...		
Paddington Street ...	1	4	Richard St., Nechells ...	16		Smithfield Street ...	1	1
Pakenham Road ...		3	Richard St., St. Paul's ...	1		Smith Street, St. George's ...	1	14
Palmer Street ...	6	8	Richmond Hill Road ...			Smith Street, Duddeston ...	1	2
Parade ...		1	River Street ...	1		Snape Street ...		
Paradise Street ...			Robert Road ...			Snow Hill ...	2	8
Parker Street ...	2	4	Rocky Lane ...		9	Soho Road ...	1	6
Park Lane ...		2	Rodway Street ...		2	Somerset Road ...		1
Park Road, All Saints ...	5	35	Rope Walk ...			Somerset Street ...		1
Park Road, Edgbaston ...			Roslie Street ...	1	1	South Road ...	1	1
Park Street ...	1	7	Rotton Park Road ...		5	Spark Street ...		3
Parliament Street ...		6	Rotton Park Street ...			Speaking Stile Walk ...		2
Paternoster Row ...			Rowland Street ...	1	1	Speedwell Road ...		3
Paxton Road ...		1	Rupert Street ...		12	Spencer Street ...		7
Pebble Mill Road ...			Russell Street ...	2	6	Spiceal Street ...		1
Peel Street ...	2	14	Ruston Street ...	3	8	Spon Terrace ...		
Penn Street, Deritend ...		1	Ruston Street North ...	1	5	Spooner Street ...		5
Penn Street, Duddeston ...	3	4	Rutland Road ...			Springfield Street ...	2	13
Perrot Street ...			Ryland Road ...	1	8	Spring Hill ...	2	15
Pershore Road ...	1	11	Ryland St. ...			Spring Hill Passage ...		1
Pershore Street ...		9	Ryland St., Ladywood ...	7		Spring Road ...		1
Phillip St., Market Hall ...			S			Spring Street ...	1	8
Pickford Street ...	1	5	Salop Street ...		1	Spring Vale ...		
Piddock Street ...		2	Saltley Road ...	1	10	Stafford Street ...	1	3
Pigott Street ...		9	Saltley Street ...			Staniforth Street ...	1	9
Pinfold Street ...			Sampson Road ...		5	Stanley Road ...		2
Pitney Street ...		2	Sampson Road North ...		1	Stanhope Street ...		7
Pitt Street ...			Sandon Road ...		1	Stanmore Road ...		1
Pitsford Street ...		2	Sand Pits ...		6	Station Street ...		3
Plough & Harrow Road ...		1	Sand Street ...	2	2	Stella Street ...	1	4
Pope Street ...	1	17	Sandy Lane ...		17	Steelhouse Lane ...	1	10
Poplar Avenue ...			Sarah Street ...			Stephenson Place ...		
Porchester Street ...		1	St. Andrew's Road ...	3	23	Stephenson Street ...		
Porthope Road ...		1	St. Clement's Road ...			Steward Street ...	3	12
Portland Road ...		2	St. Cuthbert's Road ...			Stirling Road ...		3
Potter Street ...			St. George's Crescent ...			Stoke Street ...	1	6
Poultry ...			St. George's Street ...	1	11	Stone Yard ...		
Powell Street ...		2	St. George's Place ...	1	8	Stoney Lane ...		
Prescott Street ...	1	19	St. George's Terrace ...			Stour Street ...	1	10
Price Street ...		6	St. James' Place ...		5	Stratford Place ...		2
Priestley Road ...		3	St. James' Road ...		1	Stratford Road ...	1	8
Primrose Hill ...		1	St. James' Street ...	3	5	Stratford Street ...		9
Prince Albert Street ...		1	St. Luke's Road ...		21	Stuart Street ...		4
Princes Row ...			St. Mark's Street ...	12	22	Suffolk Street ...	3	16
Princes Street ...			St. Mark's Street West ...			Summerfield Crescent ...		4
Princess Road ...		1	St. Martin's Lane ...			Summerfield Road ...		1
Princip Street ...	2	5	St. Martin's Place ...			Summer Hill ...	1	9
Prince Albert Street ...			St. Martin's Row ...			Summer Hill Road ...		2
Priory Road ...		1	St. Martin's Street ...	4		Summer Hill Street ...	4	5
Pritchett's Road ...			St. Mary's Row ...			Summer Hill Terrace ...		1
Pritchett Street ...	7	23	St. Mary's Street ...	1	5	Summer Lane ...	10	34
Proctor Street ...	1	5	St. Oswald's Road ...		1	Summer Row ...	1	3
Prospect Row ...		1	St. Paul's Square ...		1	Summer Road ...	1	9
Q			St. Peter's Place ...			Summer Street ...		1
Queen Street ...			St. Philip's Church Yard ...			Sun Street ...	2	6
			St. Stephen's Street ...			Sun Street West ...		4
			St. Vincent Street ...	12	23	Sutton Street ...		4
			Scholefield Street ...	2	15	Swallow Street ...		
			Scotland Passage ...			Swan Passage ...		
			Scotland Street ...	1		Sydney Road ...		1
			Scott Street ...			T		
			Seynour Street ...		4	Talbot Street ...	1	8
			Seymour Street ...			Talfourd Street ...	2	13
						Tanter Street ...		
						Taylor Street ...		
						Temple Field Street ...		6

TOTAL DEATH RATE FROM ALL CAUSES
AVERAGE AGE AT DEATH

AVERAGE AGE AT DEATH

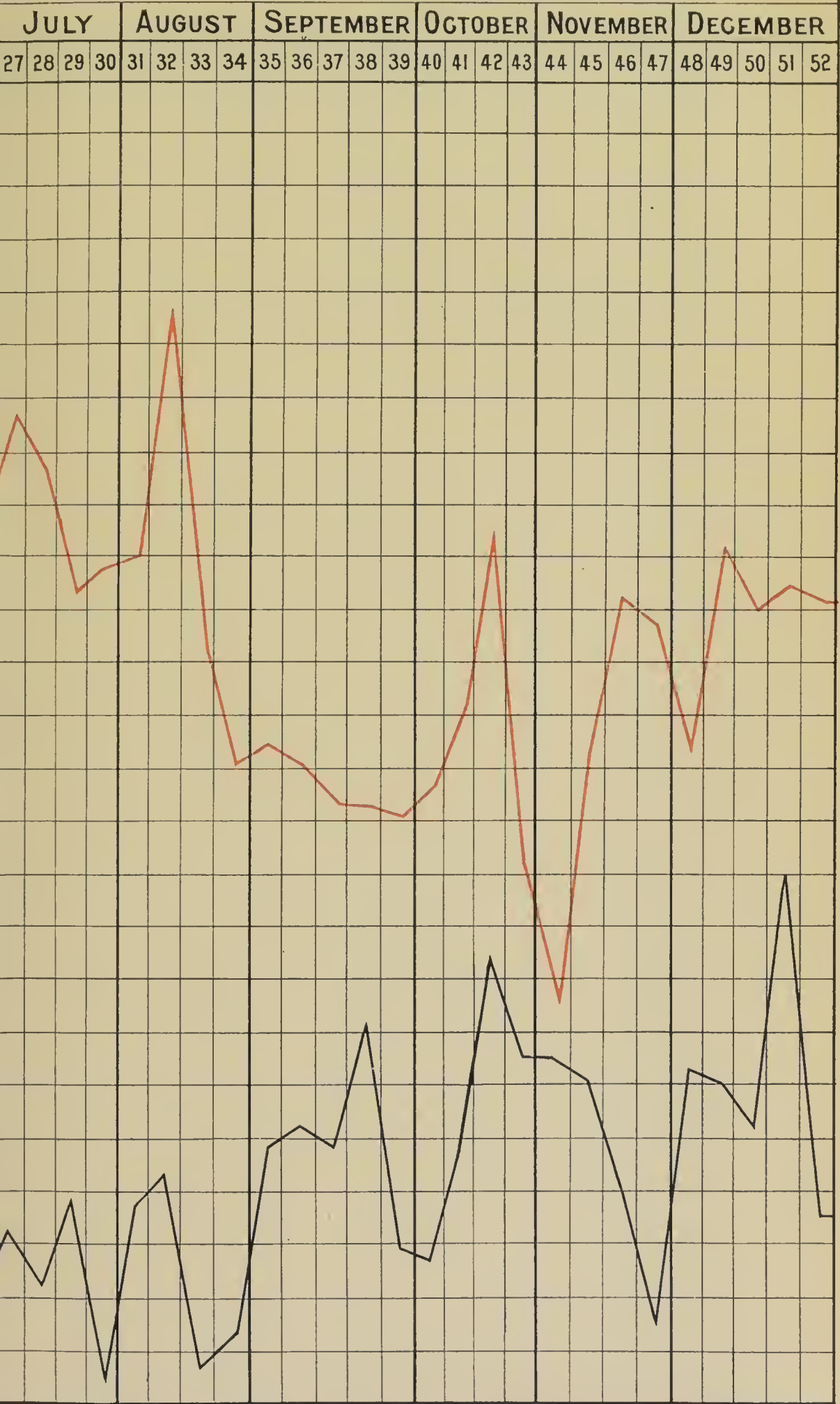
JUN 1964

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SHEWN IN WEEKLY PERIODS THUS _____

“ “ “ “ “ _____



MAP OF THE BOROUGH OF BIRMINGHAM. AS IN 1886.

The Borough and Ward Boundaries are shown thus

NOTE. THE RED SPOTS REPRESENT THE NUMBER OF DEATHS (40) FROM SCARLET FEVER IN 1888.
 " " CROSSES " " " " " (191) " MEASLES " "
 " BLUE " " " " " (59) " TYPHOID FEVER " "



BOROUGH SURVEYOR'S OFFICE,
BIRMINGHAM 1886

REPORT
ON
ADULTERATION.

CITY ANALYST'S LABORATORY,
THE COUNCIL HOUSE, BIRMINGHAM,
April 30th, 1889.

TO THE HEALTH COMMITTEE.

MR. CHAIRMAN AND GENTLEMEN,

I beg to report that during the past year 753 samples of food, drink, and drugs have been handed to me for analysis. All, except two, were procured by the Inspector of Nuisances. The nature of each article and the analytical results are given in the annexed statement:—

NO.	DATE.	ARTICLE.	REMARKS.
1—Jan.	2nd	... Ale ...	Genuine.
2—	„ 2nd	... Ale ...	Genuine.
3—	„ 2nd	... Ale ...	Genuine.
4—	„ 2nd	... Ale ...	Genuine.
5—	„ 2nd	.. Ale ...	Genuine.
6—	„ 2nd	.. Ale ...	Genuine.
7—	„ 9th	... Roll and Butter ...	Genuine.
8—	„ 9th	... Roll and Butter ...	Genuine.
9—	„ 9th	... Coffee ...	Genuine.
10—	„ 9th	... Coffee ...	Adulterated with 44 % of chicory.
11—	„ 9th	... Coffee ...	Genuine.
12—	„ 9th	... Coffee ...	Genuine.
13—	„ 9th	... Coffee ...	Adulterated with 66 % of chicory.
14—	„ 9th	... Coffee ...	Adulterated with 70 % of chicory.
15—	„ 9th	... Roll and Butter ...	Genuine.
16—	„ 9th	... Milk ...	Genuine.
17—	„ 9th	... Milk ...	Genuine.
18—	„ 9th	... Milk ...	Genuine.
19—	„ 9th	... Milk ...	Genuine.
20—	„ 9th	... Milk ...	Genuine.
21—	„ 9th	... Milk ...	Adulterated with 5 % of water. Cautioned by Health Sub-Committee.
21A—	„ 9th	... Bun ..	Contained a considerable amount of Ammonia.
22—	„ 14th	... Chewing Gum ...	Adulterated with 35 % of paraffin wax. Cautioned by Health Sub-Committee.

NO.	DATE.	ARTICLE.	REMARKS.
23—	Jan. 14th	... Sugar Confectionery	Genuine.
24—	„ 14th	... Chewing Gum ...	Adulterated with 81 % of paraffin wax. Cautioned by Health Sub-Committee.
25—	„ 14th	... Chewing Gum ...	Adulterated with 77 % of paraffin wax. Fined 10/- and costs.
26—	„ 14th	... Liquorice Gum ...	Adulterated with 91 % of paraffin wax. Cautioned by Health Sub-Committee.
27—	„ 14th	... Chewing Gum ...	Adulterated with 15 % of paraffin wax. Cautioned by Health Sub-Committee.
28—	„ 14th	... Chewing Gum ...	Adulterated with 25 % of paraffin wax. Cautioned by Health Sub-Committee.
29—	„ 14th	... White Pepper ...	Adulterated with 20 % of long pepper. Cautioned by Health Sub-Committee.
30—	„ 14th	... White Pepper ...	Genuine.
31—	„ 14th	... White Pepper ...	Adulterated with 20 % of long pepper. Cautioned by Health Sub-Committee.
32—	„ 14th	... White Pepper ...	Genuine.
33—	„ 14th	... White Pepper ...	Adulterated with 20 % of long pepper. Cautioned by Health Sub-Committee.
34—	„ 14th	... Chewing Gum ...	Adulterated with 18 % of paraffin wax. Cautioned by Health Sub-Committee.
35—	„ 16th	... Flour ...	Genuine.
36—	„ 16th	... Oatmeal ...	Genuine.
37—	„ 16th	... Flour ...	Genuine.
38—	„ 16th	... Oatmeal ...	Genuine.
39—	„ 16th	... Flour ...	Genuine.
40—	„ 16th	... Oatmeal ...	Genuine.
41—	„ 16th	... Flour ...	Genuine.
42—	„ 16th	... Oatmeal ...	Genuine.
43—	„ 16th	... Flour ...	Genuine.
44—	„ 16th	... Oatmeal ...	Genuine.
45—	„ 16th	... Oatmeal ...	Genuine.
46—	„ 16th	... Flour ...	Genuine.
47—	„ 23rd	... Sugar Confectionery	Genuine.
48—	„ 23rd	... Sugar Confectionery	Genuine.
49—	„ 23rd	... Vinegar ...	Genuine.
50—	„ 23rd	... Vinegar ...	Genuine.
51—	„ 23rd	... Vinegar ...	Genuine.
52—	„ 23rd	... Ale ...	Genuine.
53—	„ 23rd	... Sugar Confectionery	Genuine.
54—	„ 23rd	... Ale ...	Genuine.
55—	„ 23rd	... Vinegar ...	Genuine.
56—	„ 23rd	... Ale ...	Genuine.
57—	„ 23rd	... Vinegar ...	Genuine.
58—	„ 23rd	... Ale ...	Genuine.
59—	„ 23rd	... Vinegar ...	Genuine.

NO.	DATE.	ARTICLE.			REMARKS.
60—	Jan. 23rd	...	Ale	...	Genuine.
61—	" 23rd	...	Ale	...	Genuine.
62—	" 25th	...	Milk	...	Genuine.
63—	" 25th	...	Milk	...	Genuine.
64—	" 25th	...	Milk	...	Genuine.
65—	" 25th	...	Skimmed Milk	...	Adulterated with 3 % of water.
66—	" 25th	...	Milk	...	Genuine.
67—	" 25th	...	Milk	...	Genuine.
68—	" 30th	...	Butter	...	Adulterated with 84 % of foreign fat. Vendor absconded.
69—	" 30th	...	Butter	...	Consisted entirely of Margarine. Fined 2/6 and costs.
70—	" 30th	...	Butter	...	Genuine.
71—	" 30th	...	Butter	...	Consisted entirely of Margarine. Fined 10/- and costs.
72—	" 30th	...	Butter	...	Consisted entirely of Margarine. Fined 10/- and costs.
73—	Feb. 2nd	...	Milk	...	Genuine.
74—	" 2nd	...	Milk	...	Adulterated with 2 % of water, and deprived of 7 % of its cream. Cautioned by Health Sub-Committee.
75—	" 2nd	...	Milk	...	Genuine, but of poor quality.
76—	" 2nd	...	Milk	...	Genuine.
77—	" 2nd	...	Milk	...	Adulterated with 12 % of water. Fined 5/- and costs.
78—	" 2nd	...	Milk	...	Adulterated with 3 % of water, and deprived of 8 % of its cream. Cautioned by Health Sub-Committee.
79—	" 8th	...	Flour	...	Genuine.
80—	" 8th	...	Oatmeal	...	Genuine.
81—	" 8th	...	Flour	...	Genuine.
82—	" 8th	...	Flour	...	Genuine.
83—	" 8th	...	Oatmeal	...	Genuine.
84—	" 8th	...	Oatmeal	...	Genuine.
85—	" 8th	...	Flour	...	Genuine.
86—	" 8th	...	Oatmeal	...	Genuine.
87—	" 8th	...	Flour	...	Genuine.
88—	" 8th	...	Oatmeal	...	Genuine.
89—	" 8th	...	Flour	...	Genuine.
90—	" 8th	...	Oatmeal	...	Genuine.
91—	" 13th	...	Vinegar	...	Genuine.
92—	" 13th	...	Vinegar	...	Genuine.
93—	" 13th	...	Vinegar	...	Genuine.
94—	" 13th	...	Vinegar	...	Genuine.
95—	" 13th	...	Vinegar	...	Genuine.
96—	" 13th	...	Vinegar	...	Genuine.

NO.	DATE.	ARTICLE.	REMARKS.
97—	Feb. 13th	... Bread ...	Genuine.
98—	„ 13th	... Bread ...	Genuine.
99—	„ 13th	... Bread ...	Genuine.
100—	„ 13th	... Bread ...	Genuine.
101—	„ 13th	... Bread ...	Genuine.
102—	„ 13th	... Bread ...	Genuine.
103—	„ 13th	... Milk ...	Genuine.
104—	„ 13th	... Milk ...	Genuine.
105—	„ 13th	... Milk ...	Genuine.
106—	„ 13th	... Milk ...	Genuine.
107—	„ 13th	... Milk ...	Genuine.
108—	„ 13th	... Milk ...	Genuine.
109—	„ 21st	... Arrowroot ...	Genuine.
110—	„ 21st	... White Pepper ...	Adulterated with 20 % long pepper.
111—	„ 21st	... Arrowroot ...	Genuine.
112—	„ 21st	... White Pepper ...	Adulterated with 20 % long pepper.
113—	„ 21st	... Ale ...	Genuine.
114—	„ 21st	... Arrowroot ...	Genuine.
115—	„ 21st	... White Pepper ...	Genuine.
116—	„ 21st	... Ale ...	Genuine.
117—	„ 21st	... Arrowroot ...	Genuine.
118—	„ 21st	... White Pepper ..	Genuine.
119—	„ 21st	... Arrowroot ...	Genuine.
120—	„ 21st	... White Pepper ...	Genuine.
121—	„ 21st	... Arrowroot ...	Genuine.
122—	„ 21st	... White Pepper ...	Genuine.
123—	„ 21st	... Ale ...	Genuine.
124—	„ 21st	... Ale ...	Genuine.
125—	„ 21st	... Ale ..	Genuine.
126—	„ 21st	... Ale ...	Genuine.
127—	„ 21st	... Milk ...	Genuine.
128—	„ 21st	... Milk ...	Genuine.
129—	„ 21st	... Milk ...	Genuine.
130—	„ 21st	... Milk ...	Adulterated with 10·5 % of water, and deprived of 8 % of its cream. Fined 5/- and costs.
131—	„ 21st	... Milk ...	Genuine.
132—	„ 21st	... Milk ...	Genuine.
133—	March 1st	... Milk ...	Adulterated with 7½ % of water. Cautioned by Health Sub-Committee.
134—	„ 1st	... Milk ...	Adulterated with 19 % of water. Paid costs.
135—	„ 1st	... Milk ...	Genuine. *
136—	„ 1st	... Milk ...	Genuine.
137—	„ 1st	... Milk ...	Genuine.
138—	„ 1st	... Milk ...	Genuine.
139—	„ 5th	... Flour ...	Genuine.

NO.	DATE.	ARTICLE.	REMARKS.
140—	Mar. 5th	... Oatmeal ...	Genuine.
141—	„ 5th	... Flour ...	Genuine.
142—	„ 5th	... Oatmeal ...	Genuine.
143—	„ 5th	... Flour ...	Genuine.
144—	„ 5th	... Oatmeal ...	Genuine.
145—	„ 5th	... Sugar Confectionery	Genuine.
146—	„ 5th	... Flour ...	Genuine.
147—	„ 5th	... Oatmeal ...	Genuine.
148—	„ 5th	... Chewing Gum...	Contained a little paraffin wax.
149—	„ 5th	... Sugar Confectionery	Genuine.
150—	„ 5th	... Flour ...	Genuine.
151—	„ 5th	... Flour ..	Genuine.
152—	„ 5th	... Sugar Confectionery	Coated with paraffin wax.
153—	„ 5th	... Oatmeal ...	Genuine.
154—	„ 5th	... Oatmeal ...	Genuine.
155—	„ 6th	... Milk ...	Genuine.
156—	„ 6th	... Milk ...	Genuine.
157—	„ 6th	... Milk ...	Deprived of 11½ % of its cream. Paid costs.
158—	„ 6th	... Milk ...	Genuine.
159—	„ 6th	... Milk ...	Genuine.
160—	„ 6th	... Milk ...	Adulterated with 7 % of water. Cautioned by Health Sub-Committee.
161—	„ 12th	... Ground Ginger ...	Genuine.
162—	„ 12th	... Ground Ginger ...	Genuine.
163—	„ 12th	... Ginger ...	Genuine.
164—	„ 12th	... Cayenne Pepper...	Genuine.
165—	„ 12th	... Cayenne Pepper...	Genuine.
166—	„ 12th	... Ground Ginger ...	Genuine.
167—	„ 12th	... Ginger ...	Genuine.
168—	„ 12th	... Cayenne Pepper...	Genuine.
169—	„ 12th	... Ground Ginger ...	Genuine.
170—	„ 12th	... Ginger ...	Genuine.
171—	„ 12th	... Cayenne Pepper...	Genuine.
172—	„ 12th	... Ground Ginger ...	Genuine.
173—	„ 12th	... Ginger ...	Genuine.
174—	„ 12th	... Ground Ginger ...	Genuine.
175—	„ 12th	... Ginger ...	Genuine.
176—	„ 12th	... Ginger ...	Genuine.
177—	„ 12th	... Cayenne Pepper...	Genuine.
178—	„ 12th	... Cayenne Pepper...	Genuine.
179—	„ 14th	... Milk ...	Genuine.
180—	„ 14th	... Milk ...	Genuine.
181—	„ 14th	... Milk ...	Deprived of 12 % of its cream. Cautioned by Health Sub Committee.
182—	„ 14th	... Milk ...	Genuine.

NO.	DATE.	ARTICLE.	REMARKS.
183—	Mar. 14th	... Milk ...	Genuine.
184—	„ 14th	... Milk ...	Genuine.
185—	„ 19th	... Bread ...	Genuine.
186—	„ 19th	... Bread ...	Genuine.
187—	„ 19th	... Bread ...	Genuine.
188—	„ 19th	... Bread ...	Genuine.
189—	„ 19th	... Bread ...	Genuine.
190—	„ 19th	... Bread ...	Genuine.
191—	„ 19th	... Ale ...	Genuine.
192—	„ 19th	... Ale ...	Genuine.
193—	„ 19th	... Ale ...	Genuine.
194—	„ 19th	... Ale ...	Genuine.
195—	„ 19th	... Ale ...	Genuine.
196—	„ 19th	... Ale ...	Genuine.
197—	„ 20th	... Milk ...	Genuine.
198—	„ 20th	... Milk ...	Genuine.
199—	„ 20th	... Milk ...	Genuine.
200—	„ 20th	... Milk ...	Genuine
201—	„ 20th	... Milk ...	Adulterated with 18½ of water. Fined 5/ and costs.
202—	„ 20th	... Milk ...	Genuine.
203—	„ 20th	... Margarine ...	Genuine.
204—	„ 20th	... Margarine ...	Genuine.
205—	„ 20th	... Butter ...	Genuine.
206—	„ 20th	... White Pepper ...	Genuine.
207—	„ 20th	... White Pepper ...	Genuine.
208—	„ 26th	... Vinegar ...	Genuine.
209—	„ 26th	... Vinegar ...	Genuine.
210—	„ 26th	... Vinegar ...	Genuine.
211—	„ 26th	... Vinegar ...	Genuine.
212—	„ 26th	... Vinegar ...	Genuine.
213—	„ 26th	... Vinegar ...	Genuine.
214—	„ 27th	... Milk ...	Genuine.
215—	„ 27th	... Milk ...	Deprived of 17 % of its cream. Fined £5 and costs.
216—	„ 27th	... Milk ...	Genuine, but of poor quality.
217—	„ 27th	... Milk ...	Genuine.
218—	„ 27th	... Milk ...	Genuine.
219—	„ 27th	... Milk ...	Genuine.
220—	„ 27th	... Butter ...	Genuine.
221—	April 4th	... Milk ...	Genuine
222—	„ 4th	... Milk ...	Genuine
223—	„ 4th	... Milk ...	Adulterated with 10·5 % of water, and deprived of 14·5 % of its fat. Fined 5s. and costs
224—	„ 4th	... Milk ...	Genuine

NO.	DATE.	ARTICLE.	REMARKS.
225—	Apr. 4th	... Milk ...	Genuine
226—	" 4th	... Milk ...	Genuine
227—	" 5th	... Oatmeal ...	Genuine
228—	" 5th	... Oatmeal ...	Genuine
229—	" 5th	... Oatmeal ...	Adulterated with Barley Meal
230—	" 5th	... Oatmeal ...	Genuine
231—	" 5th	... Oatmeal ...	Genuine
232—	" 5th	... Oatmeal ...	Genuine
233—	" 9th	... Ale ...	Contained 3 grains of salt per gallon more than are allowed by the Excise
234—	" 9th	... Ale ...	Genuine
235—	" 9th	... Ale ...	Genuine
236—	" 9th	... Ale ...	Genuine
237—	" 9th	... Ale ...	Genuine
238—	" 9th	... Ale ...	Genuine
239—	" 13th	... Lard ...	Genuine
240—	" 13th	... Lard ...	Genuine
241—	" 13th	... Butter ...	Genuine
242—	" 13th	... Milk ...	Genuine
243—	" 13th	... Milk ...	Genuine
244—	" 13th	... Milk ...	Genuine
245—	" 13th	... Milk ...	Genuine
246—	" 13th	... Butter ...	Genuine
247—	" 13th	... Butter ...	Genuine
248—	" 13th	.. Butter ..	Genuine
249—	" 13th	... Butter ...	Genuine
250—	" 13th	... Milk ...	Adulterated with 16 % of water. Fined £1 and costs.
251—	" 13th	... Milk ...	Genuine
252—	" 14th	... Tapioca ...	Genuine
253—	" 14th	... Sago ...	Genuine
254—	" 14th	... Sago ...	Genuine
255—	" 14th	.. Tapioca ..	Genuine
256—	" 14th	... Sago ...	Genuine
257—	" 14th	... Tapioca ...	Genuine
258—	" 14th	... Tapioca ..	Genuine
259—	" 14th	... Sago ...	Genuine
260—	" 14th	... Tapioca ...	Genuine
261—	" 14th	... Sago ...	Genuine
262—	" 14th	... Tapioca ...	Genuine
263—	" 14th	... Sago ...	Genuine
264—	" 14th	... Bread ...	Genuine
265—	" 14th	.. Bread ...	Genuine
266—	" 14th	... Bread ...	Genuine
267—	" 14th	... Bread ...	Genuine
268—	" 14th	... Bread ...	Genuine

NO.	DATE.	ARTICLE.	REMARKS.
269—	Apr. 14th	... Bread	Genuine
270—	„ 13th	... Milk	Deprived of 60 % of its fat. Private purchaser
271—	„ 13th	... Milk	Deprived of 10 % of its fat. Private purchaser
272—	„ 25th	... Milk	Genuine
273—	„ 25th	... Milk	Genuine
274—	„ 25th	... Milk	Adulterated with 11 % of water. Fined 5s. and costs.
275—	„ 25th	... Milk	Genuine
276—	„ 25th	... Milk	Genuine
277—	„ 25th	... Milk	Deprived of 19 % of its fat. Summons dismissed
278—	„ 26th	... Sugar Confectionery	Contained small quantities of paraffin wax starch, and gelatine
279—	„ 26th	... Sugar Confectionery	Contained a little starch and gelatine
280—	„ 26th	... Sugar Confectionery	Coated with paraffin wax, and contained a little starch
281—	„ 26th	... Sugar Confectionery	Contained some starch
282—	„ 26th	... Sugar Confectionery	Genuine
283—	„ 26th	... Sugar Confectionery	Contained a little paraffin wax
284—	„ 26th	... Sugar Confectionery	Contained a little starch and gelatine
285—	„ 26th	... Sugar Confectionery	Contained traces of starch
286—	„ 26th	... Sugar Confectionery	Contained a little starch and gelatine
287—	„ 26th	... Sugar Confectionery	Contained a little starch and gelatine
288—	„ 26th	... Sugar Confectionery	Contained a little starch and gelatine
289—	„ 26th	... Sugar Confectionery	Contained a little starch and gelatine
290—	„ 30th	... Milk	Genuine
291—	„ 30th	... Milk	Genuine
292—	„ 30th	... Milk	Genuine
293—	„ 30th	... Milk	Genuine, but of low quality
294—	„ 30th	... Milk	Genuine
295—	„ 30th	... Milk	Adulterated with 4 % of water and deprived of $3\frac{1}{2}$ % of its fat
296—	May 8th	... Flour	Genuine
297—	„ 8th	... Flour	Genuine
298—	„ 8th	... Flour	Genuine
299—	„ 8th	... Flour	Genuine
300—	„ 8th	... Flour	Genuine
301—	„ 8th	... Flour	Genuine
302—	„ 8th	... Bread	Genuine
303—	„ 8th	... Bread	Genuine
304—	„ 8th	... Bread	Genuine
305—	„ 8th	... Bread	Genuine
306—	„ 8th	... Bread	Genuine
307—	„ 8th	... Bread	Genuine
308—	„ 8th	... Milk	Deprived of 19 % of its fat
309—	„ 8th	... Milk	Genuine
310—	„ 8th	... Milk	Genuine

NO.	DATE		RATICLE.		REMARKS.
311—	May 8th	...	Milk	...	Genuine
312—	„ 8th	...	Milk	...	Genuine
313—	„ 8th	...	Milk	...	Adulterated with 5½ % of water
314—	„ 15th	...	Ale	...	Contained 17 grains of salt per gallon more than are allowed by the Exeise
315—	„ 15th	...	Ale	...	Contained 14 grains of salt per gallon more than are allowed by the Exeise
316—	„ 15th	...	Ale	...	Genuine
317—	„ 15th	...	Ale	...	Genuine
318—	„ 15th	...	Ale	...	Genuine
319—	„ 15th	...	Ale	...	Contained 24 grains of salt per gallon more than are allowed by the Exeise
320—	„ 15th	...	Milk	...	Genuine
321—	„ 15th	...	Milk	...	Adulterated with 24 % of water
322—	„ 15th	...	Milk	...	Genuine
323—	„ 15th	...	Milk	...	Genuine
324—	„ 15th	...	Milk	...	Genuine
325—	„ 15th	...	Milk	...	Genuine
326—	„ 17th	...	Milk	...	Genuine
327—	„ 17th	...	Milk	...	Genuine, but of low quality
328—	„ 17th	...	Milk	...	Genuine
329—	„ 23rd	...	Oatmeal	...	Genuine
330—	„ 23rd	...	Oatmeal	...	Genuine
331—	„ 23rd	...	Oatmeal	...	Genuine
332—	„ 23rd	...	Oatmeal	...	Genuine
333—	„ 23rd	...	Oatmeal	...	Genuine
334—	„ 23rd	...	Oatmeal	...	Genuine
335—	„ 23rd	...	Milk	...	Genuine, but of low quality
336—	„ 23rd	...	Milk	...	Genuine, but of low quality
337—	June 2nd	...	Milk	...	Deprived of 22 % of its fat
338—	„ 2nd	...	Jalap	...	Genuine
339—	„ 2nd	...	Glyeerine...	...	Genuine
340—	„ 2nd	...	Jalap	...	Genuine
341—	„ 2nd	...	Glyeerine...	...	Genuine
342—	„ 2nd	...	Jalap	...	Genuine
343—	„ 2nd	...	Glyeerine...	...	Genuine
344—	„ 2nd	...	Jalap	..	Genuine
345—	„ 2nd	...	Glyeerine...	...	Genuine
346—	„ 2nd	...	Jalap	...	Genuine
347—	„ 2nd	...	Glyeerine...	...	Genuine
348—	„ 2nd	...	Jalap	...	Genuine
349—	„ 2nd	...	Glyeerine...	...	Genuine
350—	„ 2nd	...	Bread	...	Genuine
135—	„ 2nd	...	Bread	...	Genuine

NO.	DATE.	ARTICLES.			REMARKS.
352—	June 2nd	...	Bread	...	Genuine
353—	" 2nd	...	Bread	...	Genuine
354—	" 2nd	...	Bread	...	Genuine
355—	" 2nd	...	Bread	...	Genuine
356—	" 18th	...	Ale	...	Genuine
357—	" 18th	...	Ale	...	Contained 12 grains of salt per gallon more than are allowed by the Excise
358—	" 18th	...	Ale	...	Genuine
359—	" 18th	...	Ale	...	Genuine
360—	" 18th	...	Ale	...	Genuine
361—	" 18th	...	Ale	...	Contained 4 grains of salt per gallon more than are allowed by the Excise
362—	" 18th	...	Vinegar	...	Genuine
363—	" 18th	...	Vinegar	...	Genuine
364—	" 18th	...	Vinegar	...	Genuine
365—	" 18th	...	Vinegar	...	Genuine
366—	" 18th	...	Vinegar	...	Genuine
367—	" 18th	...	Vinegar	...	Genuine
368—	" 26th	...	Flour	...	Genuine
369—	" 26th	...	Oatmeal	...	Genuine
370—	" 26th	...	Flour	...	Genuine
371—	" 26th	...	Oatmeal	...	Genuine
372—	" 26th	...	Flour	...	Genuine
373—	" 26th	...	Oatmeal	...	Genuine
374—	" 26th	...	Flour	...	Genuine
375—	" 26th	...	Oatmeal	...	Genuine
376—	" 26th	...	Oatmeal	...	Genuine
377—	" 26th	...	Flour	...	Genuine
378—	" 26th	...	Flour	...	Genuine
379—	" 26th	...	Oatmeal	...	Genuine
380—	" 26th	...	Butter	...	Genuine
381—	" 26th	...	Butter	...	Genuine
382—	" 26th	...	Margarine	...	Genuine
383—	July 3rd	...	Lard	...	Adulterated with 8% of cotton seed oil
384—	" 3rd	...	Lard	...	Adulterated with 15% of cotton seed oil
385—	" 3rd	...	Lard	...	Adulterated with 12% of cotton seed oil
386—	" 3rd	...	Lard	...	Adulterated with 14% of cotton seed oil
387—	" 3rd	...	Lard	...	Adulterated with 16% of cotton seed oil
388—	" 3rd	...	Lard	...	Adulterated with 31% of cotton seed oil
389—	" 5th	...	Milk	...	Genuine
390—	" 5th	...	Milk	...	Adulterated with 9% of water
391—	" 5th	...	Milk	...	Genuine
392—	" 5th	...	Milk	...	Genuine
393—	" 5th	...	Milk	...	Genuine
394—	" 5th	...	Milk	...	Genuine

NO.	DATE.	ARTICLE.			REMARKS.
395—	July 6th	...	Cheese	...	Genuine
396—	„ 6th	...	Cheese	...	Genuine
397—	„ 6th	...	Cheese	...	Genuine
398—	„ 6th	...	Cheese	...	Genuine
399—	„ 6th	...	Cheese	...	Genuine
400—	„ 6th	...	Cheese	...	Genuine
401—	„ 9th	...	Bread	...	Genuine
402—	„ 9th	...	Bread	...	Genuine
403—	„ 9th	...	Bread	...	Genuine
404—	„ 9th	...	Bread	...	Genuine
405—	„ 9th	...	Bread	...	Genuine
406—	„ 9th	...	Bread	...	Genuine
407—	„ 9th	...	Sugar Confectionery		Genuine
408—	„ 9th	...	Sugar Confectionery		Genuine
409—	„ 9th	...	Sugar Confectionery		Genuine
410—	„ 9th	...	Bun	...	Genuine
411—	„ 9th	...	Bun	...	Genuine
412—	„ 9th	...	Sugar Confectionery		Genuine
413—	„ 9th	...	Sugar Confectionery		Genuine
414—	„ 9th	...	Sugar Confectionery		Genuine
415—	„ 18th	...	Oatmeal	...	Genuine
416—	„ 18th	...	Lard	...	Adulterated with 29 % of cotton seed oil
417—	„ 18th	...	Cheese	...	The fat contained 46 % of foreign fat
418—	„ 18th	...	Oatmeal	...	Genuine
419—	„ 18th	...	Oatmeal	...	Genuine
420—	„ 18th	...	Oatmeal	...	Genuine
421—	„ 18th	...	Oatmeal	...	Genuine
422—	„ 18th	...	Oatmeal	...	Genuine
423—	„ 18th	...	Lard	...	Adulterated with 11% of cotton seed oil
424—	„ 18th	...	Cheese	...	Genuine
425—	„ 23rd	...	Ale	...	Genuine
426—	„ 23rd	...	Ale	...	Genuine
427—	„ 23rd	...	Ale	...	Genuine
428—	„ 23rd	...	Ale	...	Genuine
429—	„ 23rd	...	Ale	...	Genuine
430—	„ 23rd	...	Ale	...	Contained 12 grains of salt per gallon more than is allowed by the Excise
431—	Aug. 28th	...	Cream of Tartar...		Genuine
432—	„ 28th	...	Tartaric Acid	...	Genuine
433—	„ 28th	...	Cream of Tartar...		Genuine
434—	„ 28th	...	Tartaric Acid	...	Genuine
435—	„ 28th	...	Cream of Tartar...		Genuine
436—	„ 28th	...	Tartaric Acid	...	Genuine
437—	„ 28th	...	Cream of Tartar...		Genuine
438—	„ 28th	...	Tartaric Acid	...	Genuine

NO.	DATE.	ARTICLE.	REMARKS.
439—	Aug. 28th	... Cream of Tartar...	Genuine
440—	„ 28th	... Tartarie Acid ...	Genuine
441—	„ 28th	... Cream of Tartar...	Genuine
442—	„ 28th	... Tartarie Acid ...	Genuine
443—	Sept. 8th	... Bread ...	Genuine
444—	„ 8th	... Bread ...	Genuine
445—	„ 8th	... Bread ...	Genuine
446—	„ 8th	... Bread ...	Genuine
447—	„ 8th	... Bread ...	Genuine
448—	„ 8th	... Bread ...	Genuine
449—	„ 8th	... Flour ...	Genuine
450—	„ 8th	... Flour ...	Genuine
451—	„ 8th	... Flour ...	Genuine
452—	„ 8th	... Flour ...	Genuine
453—	„ 8th	... Flour ...	Genuine
454—	„ 8th	... Flour ...	Genuine
455—	„ 17th	... Bread ...	Genuine
456—	„ 17th	... Bread ...	Genuine
457—	„ 17th	... Bread ...	Genuine
458—	„ 17th	... Bread ...	Genuine
459—	„ 17th	... Bread ...	Genuine
460—	„ 17th	... Bread ...	Genuine
461—	„ 17th	... Flour ...	Genuine
462—	„ 17th	... Flour ...	Genuine
463—	„ 17th	... Flour ...	Genuine
464—	„ 17th	... Flour ...	Genuine
465—	„ 17th	... Flour ...	Genuine
466—	„ 17th	... Flour ...	Genuine
467—	„ 17th	... Oatmeal ...	Genuine
468—	„ 17th	... Oatmeal ...	Genuine
469—	„ 17th	... Oatmeal ...	Genuine
470—	„ 17th	... Oatmeal ...	Genuine
471—	„ 17th	... Oatmeal ...	Genuine
472—	„ 17th	... Oatmeal ...	Genuine
473—	„ 26th	... Bread ...	Genuine
474—	„ 26th	... Bread ...	Genuine
475—	„ 26th	... Bread ...	Genuine
476—	„ 26th	... Bread ...	Genuine
477—	„ 26th	... Bread ...	Genuine
478—	„ 26th	... Bread ...	Genuine
479—	„ 26th	... Flour ...	Genuine
480—	„ 26th	... Oatmeal ...	Genuine
481—	„ 26th	... Flour ...	Genuine
482—	„ 26th	... Oatmeal ...	Genuine
483—	„ 26th	... Flour ...	Genuine

NO.	DATE.	ARTICLE.	REMARKS.
484—	Sep. 26th	Oatmeal	Genuine
485—	„ 26th	Flour	Genuine
486—	„ 26th	Oatmeal	Genuine
487—	„ 26th	Flour	Genuine
488—	„ 26th	Oatmeal	Genuine
489—	„ 26th	Flour	Genuine
490—	„ 26th	Oatmeal	Genuine
491—	„ 26th	Milk	Genuine
492—	„ 26th	Milk	Genuine
493—	„ 26th	Milk	Genuine
494—	„ 26th	Milk	Genuine
495—	„ 26th	Milk	Genuine
496—	„ 26th	Milk	Genuine
497—	Oct. 6th	Ale	Genuine.
498—	„ 6th	Ale	Genuine.
499—	„ 6th	Ale	Contained 32 grains of salt per gallon more than is allowed by the Exeise.
500—	„ 6th	Ale	Genuine.
501—	„ 6th	Ale	Genuine.
502—	„ 6th	Ale	Genuine.
503—	„ 9th	Lard	Genuine.
504—	„ 9th	Lard	Adulterated with 13 % of cotton seed oil.
505—	„ 9th	Sugar Confectionery	Adulterated with 90 % of paraffin wax.
506—	„ 9th	Sugar Confectionery	Genuine.
507—	„ 9th	Sugar Confectionery	Adulterated with 3 % of paraffin wax.
508—	„ 9th	Sugar Confectionery	Genuine.
509—	„ 9th	Butter	Adulterated with 20 % of foreign fat.
510—	„ 9th	Butter	Consisted of margarine.
511—	„ 9th	Butter	Genuine (nearly).
512—	„ 11th	Milk	Genuine.
513—	„ 11th	Milk	Adulterated with 9 % of water.—Cautioned by Health Sub-Committee.
514—	„ 11th	Milk	Genuine.
515—	„ 11th	Milk	Genuine.
516—	„ 11th	Milk	Genuine.
517—	„ 11th	Milk	Genuine.
518—	„ 15th	Bread	Genuine.
519—	„ 15th	Oatmeal	Genuine.
520—	„ 15th	Bread	Genuine.
521—	„ 15th	Oatmeal	Genuine.
522—	„ 15th	Bread	Genuine.
523—	„ 15th	Oatmeal	Genuine.
524—	„ 15th	Bread	Genuine.
525—	„ 15th	Bread	Genuine.
526—	„ 15th	Oatmeal	Genuine.

NO.	DATE.	ARTICLE.	REMARKS.
527—	Oct. 15th	Oatmeal	Genuine.
528—	" 15th	Oatmeal	Genuine.
529—	" 15th	Bread	Genuine.
530—	" 16th	Milk	Genuine.
531—	" 16th	Milk	Genuine.
532—	" 16th	Milk	Genuine.
533—	" 16th	Milk	Genuine.
534—	" 16th	Milk	Genuine.
535—	" 16th	Milk	Genuine.
536—	" 29th	Flour	Genuine.
537—	" 29th	Flour	Genuine.
538—	" 29th	Flour	Genuine.
539—	" 29th	Flour	Genuine.
540—	" 29th	Flour	Genuine.
541—	" 29th	Flour	Genuine.
542—	" 29th	Milk	Genuine.
543—	" 29th	Milk	Genuine.
544—	" 29th	Milk	Genuine.
545—	" 29th	Milk	Genuine.
546—	" 29th	Milk	Genuine.
547—	" 29th	Milk	Genuine.
548—	Nov. 6th	Milk	Genuine
549—	" 6th	Milk	Genuine.
550—	" 6th	Milk	Adulterated with 24 % of water.—Fined 5/- and Costs.
551—	" 6th	Milk	Genuine.
552—	" 6th	Milk	Adulterated with 9 % of water.—Cautioned by Health Sub-Committee.
553—	" 6th	Milk	Genuine.
554—	" 12th	Roll	Genuine.
555—	" 12th	Roll	Genuine.
556—	" 12th	Scone	Genuine.
557—	" 12th	Roll	Genuine.
558—	" 12th	Vinegar	Genuine.
559—	" 12th	Vinegar	Genuine.
560—	" 12th	Vinegar	Genuine.
561—	" 12th	Vinegar	Genuine.
562—	" 12th	Scone	Genuine.
563—	" 12th	Roll	Genuine.
564—	" 12th	Vinegar	Genuine.
565—	" 12th	Scone	Genuine.
566—	" 12th	Vinegar	Genuine.
567—	" 13th	Milk	Genuine.
568—	" 13th	Milk	Genuine.
569—	" 13th	Milk	Genuine.

NO.	DATE.	ARTICLE.	REMARKS.
570—	Nov. 13th	Milk	Genuine.
571—	" 13th	Milk	Genuine.
572—	" 13th	Milk	Genuine.
573—	" 13th	Lard	Genuine.
574—	" 13th	Cheese	Genuine.
575—	" 13th	Butter	Genuine.
576—	" 13th	Cheese	Genuine.
577—	" 13th	Cheese	Genuine.
578—	" 15th	Milk	Genuine.
579—	" 15th	Milk	Genuine.
580—	" 15th	Milk	Genuine.
581—	" 15th	Milk	Genuine.
582—	" 15th	Milk	Genuine.
583—	" 15th	Milk	Genuine.
584—	" 19th	Oatmeal	Genuine.
585—	" 19th	Oatmeal	Genuine.
586—	" 19th	Oatmeal	Genuine.
587—	" 19th	Oatmeal	Genuine.
588—	" 19th	Oatmeal	Genuine.
589—	" 19th	Oatmeal	Genuine.
590—	" 21st	Milk	Genuine.
591—	" 21st	Milk	Genuine.
592—	" 21st	Milk	Genuine.
593—	" 21st	Milk	Genuine.
594—	" 21st	Milk	Genuine.
595—	" 21st	Milk	Adulterated with 11½ % of water.—Cautioned by Health Sub-Committee.
596—	" 26th	Flour	Genuine.
597—	" 26th	Flour	Genuine.
598—	" 26th	Flour	Genuine.
599—	" 26th	Flour	Genuine.
600—	" 26th	Flour	Genuine.
601—	" 26th	Flour	Genuine.
602—	" 26th	Glycerine	Genuine.
603—	" 26th	Olive Oil	Genuine.
604—	" 26th	Glycerine	Genuine.
605—	" 26th	Olive Oil	Genuine.
606—	" 26th	Mustard	Genuine.
607—	" 26th	Glycerine	Genuine.
608—	" 26th	Olive Oil	Genuine.
609—	" 26th	Mustard	Genuine.
610—	" 26th	Mustard	Genuine.
611—	" 26th	Mustard	Genuine.
612—	" 26th	Mustard	Genuine.
613—	" 26th	Mustard	Genuine.

NO.	DATE.	ARTICLE.	REMARKS.
614—	Nov. 26th	Glycerine	Genuine.
615—	" 26th	Olive Oil	Genuine.
616—	" 26th	Glycerine	Genuine.
617—	" 26th	Olive Oil	Genuine.
618—	" 26th	Glycerine	Genuine.
619—	" 26th	Olive Oil	Genuine.
620—	" 26th	Senna	Genuine.
621—	" 26th	Senna	Genuine.
622—	" 26th	Senna	Genuine.
623—	" 26th	Senna	Genuine.
624—	" 26th	Senna	Genuine.
625—	" 26th	Senna	Genuine.
626—	" 27th	Butter	Genuine.
627—	" 27th	Cheese	Genuine.
628—	" 27th	Lard	Genuine.
629—	" 27th	Epsom Salts	Genuine.
630—	" 27th	Butter	Genuine.
631—	" 27th	Cheese	Genuine.
632—	" 27th	White Pepper	Genuine (nearly).
633—	" 27th	Butter	Genuine.
634—	" 27th	Cheese	Genuine.
635—	" 27th	Butter	Genuine.
636—	" 27th	Butter	Genuine.
637—	" 27th	Cheese	Genuine.
638—	" 27th	Mustard	Genuine.
639—	" 27th	Lard	Genuine.
640—	" 27th	Cheese	Genuine.
641—	" 27th	Cheese	Genuine.
642—	" 29th	Milk	Adulterated with 23 % of added water.— Fined £5 and Costs.
643—	" 29th	Milk	Adulterated with 22 % of added water.
644—	" 29th	Milk	Genuine.
645—	" 29th	Milk	Genuine.
646—	" 29th	Milk	Genuine (nearly).
647—	Dec. 3rd	Sugar Confectionery	Genuine.
648—	" 3rd	Sugar Confectionery	Genuine.
649—	" 3rd	Sugar Confectionery	Genuine.
650—	" 3rd	Sugar Confectionery	Genuine.
651—	" 3rd	Sugar Confectionery	Genuine.
652—	" 3rd	Sugar Confectionery	Genuine.
653—	" 4th	Milk	Genuine.
654—	" 4th	Milk	Genuine.
655—	" 4th	Milk	Genuine (but of low quality).
656—	" 4th	Milk	Genuine.
657—	" 4th	Milk	Genuine.

NO.	DATE.	ARTICLE.	REMARKS.
658—	Dec. 4th	Milk	Genuine.
659—	" 7th	Bread	Genuine.
660—	" 7th	Bread	Genuine.
661—	" 7th	Brandy	Genuine.
662—	" 7th	Brandy	Genuine.
663—	" 10th	Butter	Genuine.
664—	" 10th	Butter	Genuine.
665—	" 10th	Butter	Genuine.
666—	" 10th	Butter	Consisted of margarine.
667—	" 10th	Butter	Genuine.
668—	" 10th	Butter	Genuine.
669—	" 10th	Butter	Genuine.
670—	" 11th	Butter	Genuine.
671—	" 11th	Butter	Genuine.
672—	" 11th	Butter	Genuine.
673—	" 11th	Butter	Genuine.
674—	" 11th	Cheese	Genuine.
675—	" 13th	Milk	Genuine.
676—	" 13th	Milk	Genuine.
677—	" 13th	Milk	Genuine.
678—	" 13th	Milk	Genuine.
679—	" 13th	Milk	Genuine.
680—	" 13th	Milk	Genuine.
681—	" 15th	Sugar Confectionery	Genuine.
682—	" 17th	Milk	Genuine.
683—	" 17th	Milk	Adulterated with 9 % of water.—Cautioned by Health Sub Committee.
684—	" 17th	Milk	Genuine.
685—	" 17th	Milk	Genuine.
686—	" 17th	Milk	Adulterated with 16 % of water.—Cautioned by Health Committee.
687—	" 17th	Milk	Genuine.
688—	" 18th	Ale	Genuine.
689—	" 18th	Beer	Genuine.
690—	" 18th	Ale	Genuine.
691—	" 18th	Beer	Genuine.
692—	" 18th	Ale	Genuine.
693—	" 18th	Beer	Genuine.
694—	" 18th	Ale	Genuine.
695—	" 18th	Beer	Genuine.
696—	" 18th	Ale	Contained 11 grains of salt per gallon more than is allowed by the Excise.
697—	" 18th	Beer	Genuine.
698—	" 18th	Ale	Genuine.
699—	" 18th	Beer	Genuine.

NO.	DATE.	ARTICLE.	REMARKS.
700—	Dec. 18th	Vinegar.....	Genuine.
701—	" 18th	Vinegar.....	Genuine.
702—	" 18th	Vinegar.....	Genuine.
703—	" 18th	Vinegar.....	Genuine.
704—	" 18th	Vinegar.....	Genuine.
705—	" 18th	Vinegar.....	Genuine.
706—	" 18th	Sugar Confectionery	Genuine.
707—	" 18th	Sugar Confectionery	Genuine.
708—	" 18th	Sugar Confectionery	Genuine.
709—	" 18th	Tapioca.....	Genuine.
710—	" 18th	Oatmeal	Genuine.
711—	" 18th	Sago	Genuine.
712—	" 18th	Tapioca.....	Genuine.
713—	" 18th	Oatmeal	Genuine.
714—	" 18th	Sago	Genuine.
715—	" 18th	Sago	Genuine.
716—	" 18th	Oatmeal	Genuine.
717—	" 18th	Tapioca.....	Genuine.
718—	" 18th	Tapioca.....	Genuine.
719—	" 18th	Sago	Genuine.
720—	" 18th	Sugar Confectionery	Genuine.
721—	" 18th	Sugar Confectionery	Genuine.
722—	" 18th	Sugar Confectionery	Genuine.
723—	" 18th	Oatmeal	Genuine.
724—	" 18th	Tapioca.....	Genuine.
725—	" 18th	Sago	Genuine.
726—	" 18th	Oatmeal	Genuine.
727—	" 18th	Tapioca.....	Genuine.
728—	" 18th	Sago	Genuine.
729—	" 18th	Oatmeal	Genuine.
730—	" 20th	Sugar Confectionery	Genuine.
731—	" 20th	Sugar Confectionery	Genuine.
732—	" 20th	Sugar Confectionery	Genuine.
733—	" 20th	Sugar Confectionery	Genuine.
734—	" 31st	Bread	Genuine.
735—	" 31st	Bread	Genuine.
736—	" 31st	Bread	Genuine.
737—	" 31st	Bread	Genuine.
738—	" 31st	Bread	Genuine.
739—	" 31st	Bread	Genuine.
740—	" 31st	Flour.....	Genuine.
741—	" 31st	Arrowroot	Genuine.
742—	" 31st	Flour.....	Genuine.
743—	" 31st	Arrowroot	Genuine.
744—	" 31st	Flour.....	Genuine.

NO..	DATE.	ARTICLE.	REMARKS.
745—	Dec. 31st	Arrowroot	Genuine.
746—	" 31st	Flour.....	Genuine.
747—	" 31st	Arrowroot	Genuine.
748—	" 31st	Flour.....	Genuine.
749—	" 31st	Arrowroot	Genuine.
750—	" 31st	Flour.....	Genuine.
751—	" 31st	Arrowroot	Genuine.
752—	" 31st	Butter	Genuine.

The 753 samples analysed comprised—

181 Samples of Milk.

72	"	Oatmeal.
70	"	Bread.
66	"	Ale.
66	"	Flour.
46	"	Sugar Confectionery.
36	"	Vinegar.
35	"	Butter.
18	"	Cheese.
15	"	Lard.
14	"	Pepper.
12	"	Arrowroot.
12	"	Ginger.
12	"	Glycerine.
12	"	Sago.
12	"	Tapioca.
8	"	Chewing Gum.
7	"	Mustard.
6	"	Cayenne Pepper.
6	"	Coffee.
6	"	Cream of Tartar.
6	"	Jalap.
6	"	Olive of Oil.
6	"	Senna.
6	"	Tartaric Acid.
4	"	Roll.
3	"	Roll and Butter.
3	"	Margarine.
3	"	Scone.
2	"	Brandy.
1	"	Bun.
1	"	Epsom Salts.

Total 753 samples.

The Table below gives the number of samples analysed, and the percentages of adulteration of the principal classes of food and drink in each of the last sixteen years:—

PROPORTION OF ADULTERATED ARTICLES PER 100 SAMPLES ANALYSED OF THE FOLLOWING COMMODITIES.

Years.	Number of Samples Analysed.	Total Percentage of Adulteration	Percentage of Adulteration of undermentioned Articles.								
			Milk.	Bread and Flour.	Butter.	Groceries.	Wines.	Beer.	Spirits.	Drugs.	Other Articles
1873	87	65	75	0	0	87	—	—	—	100	100
1874	79	42	67	0	66	16	—	0	100	—	—
1875	73	38	55	0	—	36	100	—	—	25	—
1876	92	33	30	—	—	19	—	33	25	36	62
1877	176	40	58	0	—	12	—	21	36	26	31
1878	158	21	57	0	0	10	0	13	26	—	—
1879	168	25	60	0	0	5	—	16	—	—	0
1880	178	21	46	0	0	0	—	0	—	—	0
1881	197	23	54	0	36	8	—	0	50	0	0
1882	321	18	36	0	25	10	—	0	—	—	0
1883	151	38	47	0	30	42	100	17	29	100	—
1884	816	21	41	1	40	23	—	0	40	21	0
1885	914	13	24	0	40	22	—	2	0	7	0
1886	876	9	18	0	23	10	—	6	20	—	0
1887	818	12	15		52	12	—	1	0	0	40
1888	753	11	18	0	20	8	—	14	0	0	23

Eighty-three of this year's samples were adulterated; the percentage of adulterated articles shows a slight diminution on that of the previous year, having fallen from 12 to 11 per cent.

Milk.

Thirty-three or eighteen per cent. of the milks proved to be adulterated; the adulteration took the usual forms, viz.: addition of water or abstraction of fat; some of the samples had been tampered with in both these respects. The proportion of sophisticated samples is a little higher than in the preceding twelve months.

Oatmeal.
Bread.
Flour.

One of the Oatmeals contained Barley-meal, while all the samples of Bread and Flour submitted to analysis were as usual unadulterated.

Nine of the samples of Ale had an excess of salt, five ^{Ale.} of the Peppers contained long pepper, and three of the six ^{Pepper.} samples of Coffee were admixtures of that substance with chicory.

Of the thirty-five samples purchased as Butter, seven ^{Butter.} were really Margarine; two of them were sold as Margarine, but were not labelled as such.

The whole of the samples of Chewing Gum contained ^{Chewing Gum.} paraffin wax, as did also six of the 46 samples of Sugar ^{Sugar Confectionery.} Confectionery.

So many as nine of the fifteen samples of Lard contained ^{Lard.} cotton-seed oil, while the fat in one of the samples of Cheese ^{Cheese.} consisted of Margarine, and not Butter.

All the other articles examined, comprising among others ^{Miscellaneous Articles.} Vinegar, Ginger, Arrowroot, Cayenne Pepper, Glycerine, Sago, and Tapioca, were genuine.

I remain, Mr. Chairman and Gentlemen,

Your obedient Servant,

ALFRED HILL, M.D., F.I.C.,

City Analyst.

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